THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—40TH YEAR SYDNEY, SATURDAY, MARCH 28, 1953 No. 13

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
A Study of Medicine Overseas, by Alan E. Lee .. 429
Some Aspects of Rehabilitation and Placement of the Incapacitated Worker, by W. E. George .. 435
Rehabilitation and Placement of the Incapacitated Worker, by G. G. Burniston 440
Observations on Biliary Calculus Ulcerating into the Small Intestine, by L. I. Burt 444
The Adoption and Fostering of Children, by Marjorie Gilchrist 445
Cough, Faintness and Syncope, by M. Glick 447

REVIEWS—
The Extra Pharmacopœia (Martindale) 449
Visceral Circulation 449
Physiology of the Eye 449
The Physician's Guide to Chemotherapy 450
Residential Speech Therapy 450

BOOKS RECEIVED 450

LEADING ARTICLES—
A Plea for the Doctor's Wife 451

CURRENT COMMENT—
Ectopic Pregnancy 452
Disturbance of Normal Bacterial Ecology by Antibiotics 452
The Prevention of Rheumatic Fever 453

ABSTRACTS FROM MEDICAL LITERATURE—
Pathology 454
Morphology 455

SPECIAL ARTICLES FOR THE CLINICIAN— Page.
LVIII. Intussusception 456

BRITISH MEDICAL ASSOCIATION NEWS—
Scientific 458

MEDICAL SOCIETIES—
Melbourne Pædiatric Society 458

OUT OF THE PAST 461

CORRESPONDENCE—
National Health and Medical Research Council .. 462
Visual Education in Otology 462

OBITUARY—
Cecil Purser 462

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA 463

DEATHS 464

NOMINATIONS AND ELECTIONS 464

DIARY FOR THE MONTH 464

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 464

EDITORIAL NOTICES 464

A STUDY OF MEDICINE OVERSEAS.[1]

By ALAN E. LEE,
Brisbane.

ON his return from an overseas post-graduate tour, it is proper that a doctor should give his colleagues some account of the experiences with which his mind is filled, and perhaps compare the circumstances of his home State with those existing elsewhere.

Since this trip also had a medico-political aspect, in that I represented Australia at a meeting of the British Commonwealth Medical Conference in Calcutta, I might tell you first something of conditions of medical practice in India.

India.

Having arrived in Calcutta by air, and finding that our Indian hosts wished to entertain us in Delhi, I made this 900 miles journey by rail, to see something of the country. As we passed for hundreds of miles across the plains of India, this flat, fenceless, almost treeless land, covered everywhere by ripening wheat, resembled greatly much of the Australian inland country, except that more often than one would see a farmhouse in Australia there would appear a mud-built village, housing several hundreds of people.

Since there is no other fuel, all animal excrement is carefully collected and dried, and so none finds its way back into the land. Without artificial fertilizers or the means to buy them, this poor clay soil is becoming increasingly depleted, the crops are becoming poorer and the people hungrier.

If there is malnutrition in the country, in the cities it may be even worse. I observed chiefly the situation in the great city of Calcutta, now the capital of West Bengal, and erstwhile capital of British India. In the great post-war partition East Bengal went to Pakistan, taking with it the chief food-producing areas of Bengal, but shedding in the process several million refugees, most of whom found their way to Calcutta. One was told, and it seemed quite credible, that one-fifth of Calcutta's population were homeless, living and sleeping on the footpaths. Many of the remainder lived in poor mud huts, not more than four feet high, rather resembling bakers' ovens. Cooking was apparently done on open fires, and if one passed through such areas in the late afternoon the smoke was so dense as to be a serious menace to traffic.

In Western India also, Pakistan took much of the food-producing country (and while the Kashmiri situation keeps them in a state of "cold" war, very little of Pakistan's surplus is likely to go to India).

The continued disorders in Burma have also practically stopped the previous large exports of rice from that country, on which India has always depended to bridge the gaps in its own food production. When to all this are added the facts of several years of poor crops in

[1] Read at a meeting of the Queensland Branch of the British Medical Association on July 17, 1952.

South India, and an estimated increase in the population of 50,000,000 in the last ten years, it is little to be wondered at that India is now a hungrier land than ever before in living memory, and the combination of malnutrition and bad environmental conditions is reflected in a rapid increase in phthisis and other diseases.

Against this sombre background I doubt if one can paint any bright picture of the situation of our Indian medical colleagues. Their situation is in fact incredibly difficult.

Our hosts in India were the members of the Indian Medical Association, a twenty-five year old body which is now, to their great pride, affiliated with the British Medical Association. It is a federation of about 415 Branches, some with as few as six members, all of whom must be registered medical practitioners, trained in western medicine. But it contains only about 30% of the available practitioners, the majority being engaged in private practice, while Government medical officers stay conspicuously aloof from it. Since it has such a membership, I gained the impression that it largely represented private medical practice in India, and under the able and self-sacrificing leadership of such men as its honorary secretary, Dr. S. C. Sen, who is also a member of the Council of the World Medical Association, it is striving to secure conditions of practice for its members approximating to those enjoyed in countries such as Australia, England, or the United States. But the difficulties of implanting such conditions of practice into India are formidable. Its influence with governments is not great, and its finances are meagre. That it should have done so much with honorary workers, including the production of an excellent journal, and even a venture into the popular health magazine field, is a great tribute to the enthusiasm and sincerity of many of its members.

If the position of the Indian Medical Association is difficult, that of the individual practitioner is often incredibly so. Though the simplest arithmetic will show that India is very short of trained doctors, private practice is applicable to such a small minority of its teeming millions, owing to widespread poverty and the essentially rural distribution of its population, that there is said to be acute unemployment among such practitioners. Moreover, there are very large numbers of self-styled homœopaths and also practitioners of various indigenous cults, whose competition in private practice modifies that of the trained doctors. All these cultists dispense their own medicines, for which they charge, and the consultation is supposed to be free. To such an extent must other practitioners follow suit that there are said to be only 85 retail pharmacists in all India, while the young doctors at least, struggling for practice, may get no consultation fee, but only a small sum for the medicine they dispense or the injection that they are apt to give so regularly.

Not only does much of the population fail to appreciate the virtues of medical training, but India must be unique in that it seems a positive disadvantage to be a registered practitioner. While registration entails adherence to a code of ethics and subjects the doctor to certain prohibitions, it carries no compensating privileges. Indians live and die without any necessity for birth and death certificates, and the only social service certificate, that of the newly fledged Workers' Compensation Corporation, is not acceptable from a doctor in private practice, but only from Government doctors.

If, faced with all these difficulties, a doctor joins the Government service, he finds that the Government of India, for nationalistic reasons, refuses to distinguish between practitioners of western medicine and the various cultists, and accepts them equally into its medical services. And since the State Governments, which, as in Australia, control health services, are willing to pay salaries only little above starvation levels, the practitioner, uncertain as to his future, is in a proper quandary. Since he is faced with these difficult conditions, you might wonder that any young Indian wants to be medically trained; yet such is the case, and at the Calcutta Medical School that I visited, one of three in that city, 1200 students were registered in the medical faculty, and pursuing a course of study similar in all respects to that followed by members of this audience. Yet here too there was a paradox. Though India badly needs medical graduates, the standards for qualification, as laid down by the Medical Council of India, are kept so high that only 15% of students qualify without repeating at least one year, and the failure rate in the final examinations is about 50%.

Now why are Indians so eager to qualify in medicine, and why do they form the largest single racial group of post-graduate students in London? The desire of the educated Indian to improve the conditions of life in India is undoubtedly one important reason. I would also venture the opinion, which is necessarily superficial, and may be wrong, that private practice will not be the complexion of Indian medicine in the foreseeable future. It will exist for the urban dwellers who can afford it, but for the hundreds of millions of the abysmally poor, if they are to get a medical service at all, it must come from some type of Government service, probably on a salaried basis.

Almost all the papers read at our conference were by the medical heads of Government departments, and they were an impressive group of individuals. If, in the development of their long-range plans, they are apt to leave the private practitioners outside their consideration, as our Indian Medical Association colleagues argued so vehemently in the discussions of these papers, it may be only because their relative smattering amongst the vast Indian panorama can allow them to play no large part in the solution of its problems.

One last note before leaving India. It was said that Englishmen were never so honoured, so sought after and so numerous as they are today in the Republic of India. This at least can be set against the melancholy sight of the miles of deserted and decaying palaces of the English sahib in the outskirts of Calcutta.

Great Britain.

Now to pass to a much more cheerful subject, I should like to speak of the uprising of London to the position of the leading post-graduate teaching centre, and probably the premier medical centre in the world, for this it has surely become. Partly it has been an active and partly a passive process. Actively it has occurred through London's own exertions, in the organization of an elaborate post-graduate teaching system, by the provisions made possible by the magnificent gifts of such men as Lord Nuffield and the late Sir Henry Wellcome, and to a considerable extent, be it whispered only in Australia and the United States, because of the existence of the National Health Service. Passively London has gained by the partial extinction of scientific medicine in the continent of Europe.

To one who knew London nearly thirty years ago, the change today is startling. An elaborate organization has been built up to provide post-graduate instruction of every kind, a great array of grouped integrated hospitals are competent to give it, and their staffs are eager to welcome visitors, while previously unheard-of living facilities are available. Almost on the exact site in Guildford Street where thirty years ago I lived in a fifth-rate boarding house, the veritable palace of London House now offers a home to 300 post-graduate students.

The British Medical Association itself maintains an elaborate department for overseas doctors, which, if it cannot rival the help given by Sir Francis Fraser and his Post-Graduate Federation, or even that given in an honorary capacity by such friends of the overseas doctor as Sir Gordon Gordon-Taylor at the Royal College of Surgeons, still goes far, in its various activities of home-finding, organizing periodical receptions for overseas visitors, and in many other ways, to make their stay in England happy.

What part has the National Health Service played in all this? First of all its coming saved the whole hospital system from certain bankruptcy, which in 1947 was very near; then it integrated and grouped the hospital system of London and provided the finances by which it is maintained and its staffs are paid. Finally it opened up many

new post-graduate facilities. The Post-Graduate Medical School of London is situated in a hospital hardly heard of at my earlier visit, while St. James's Hospital, Balham, which the work of Norman Tanner has made a Mecca for visiting surgeons—even if still, in Dr. Frank Lahey's words, "never was such good surgery done under such bad conditions"—was thirty years ago merely a Poor-Law infirmary in the slums of south London.

As regards the preeminence of London medicine and the reasons therefor, I have no time to speak, apart from saying that on the surgical side I think it is related to the large supply of public hospital beds, good choice of staffs for the surgical professorial units, and good fortune in that recent advances have been in the fields of anæsthesia, chest surgery and cardiac surgery, in all of which London has been and remains preeminent.

At least for undergraduate teaching an adequate supply of public bed patients is very important, as certain university departments in Australia, especially those of obstetrics, have already discovered. In America the position has become very difficult indeed. With a high general level of prosperity and a wide use of prepayment voluntary insurance schemes (50,000,000 people are covered by Blue Cross Hospital Insurance and 26,000,000 by Blue Shield Medical Insurance), not only are public beds rare, but they are occupied to a considerable extent by Blue Shield patients below an income level of 3000 dollars, who are really intermediate patients.

So much has the pendulum swung towards private practice that the most famous surgeons, even though attached to medical schools, can be seen working only in private hospitals, the diagnosis and treatment of public hospital bed patients being left entirely to the resident staffs.

In England I do not think I saw an operation on any but a public bed patient, while in America I am reasonably sure that every operation but one I witnessed was on a private patient. While we may congratulate our American colleagues that this should be the case, it does seem that if the scales are tipped too far towards private practice it can become the almost exclusive concern of those best qualified to teach students, to the detriment of the public patients and the students (though it may conceivably be a very good thing for the private patient, for the resident training in surgery and, with proper organization, even for the post-graduate student—as the Mayo Clinic bears witness).

I think I should now turn to more purely clinical problems, and out of many that have passed through my mind I have chosen the following four: (i) McWhirter and the treatment of cancer of the breast, (ii) some new methods in cancer treatment, (iii) developments in cardiovascular surgery, and (iv) recent anæsthetic developments.

Professor Robert McWhirter and the Treatment of Cancer of the Breast.

You will remember that many years ago the fathers of modern surgery, on the basis of pathological investigations and clinical results, determined that the proper surgical attack on cancer embodied the wide removal, in one piece if possible, of the primary growth, the lymphatic drainage therefrom, and the primary glands into which it drained; and that this was held to be achieved perfectly in the radical operation for cancer of the breast with which the names of Halsted and of Sampson Handley, amongst others, have often been linked.

The results of this operation, while not outstandingly good, were felt to be valuable, and certainly superior to any lesser removal, and the usual results quoted were 70% to 80% of survivors after five years if the axillary glands at operation were not involved in the growth, and 20% to 30% if they were so involved.

When radiotherapy became established it was often used as a post-operative adjunct to surgery and was credited with considerable palliative effect by English surgeons, but with very little benefit by most American doctors.

These figures have been subjected to somewhat critical analysis in recent years, the survival periods of patients with untreated breast cancer being taken into account, and two of the most destructive critics, Park and Lees (1951), writing last year from America, stated that "not only has no effect of delay in treatment been demonstrated, but it has not even been proved that the survival rate in cancer of the breast is affected by treatment at all. An apparent cure rate may be partly or wholly fictitious".

As a background to this depressing statement may be quoted statistics (Harrington, 1952) which show that the mortality rate per 100,000 women in the United States who died from this disease increased from 10·9 in 1901 to 26·9 in 1948. In that year 18,938 women were certified as having died of carcinoma of the breast, the greatest annual number ever recorded.

This brings us to Robert McWhirter. Having worked in London with Stanford Cade at a time when he was treating cancer of the breast by the exclusive use of radium implantation, McWhirter observed that Cade obtained sufficiently good results to convince him that irradiation alone could sometimes cure cancer of the breast or at least secure long palliation. McWhirter returned to Edinburgh as radiotherapist to the Royal Infirmary, where he embarked on an investigation of the results hitherto obtained by radical surgery, and at a meeting of the staff in 1938 showed the surgeons that of the total number of patients referred to them only 56% had been regarded as suitable for radical amputation, that the results of operation on this group were much worse than the surgeons had believed, and finally, that post-operative irradiation after radical amputation achieved only a minor improvement in results, while it certainly caused many more œdematous arms than surgery alone. He suggested to the surgeons quite seriously, for reasons that will be stated presently, that they should make an experiment of simple mastectomy followed by irradiation, leaving the responsibility of treatment of the axilla to the radiotherapist.

Five of the seven surgeons agreed to give this experiment a trial, and to McWhirter's grief, because he had hoped their radical operations would form a source of comparison, the two remaining surgeons followed suit within a year. This experiment has continued to the present day.

The only radical operations performed are on a group of patients who are refused radiotherapy because of the technical difficulties associated with fat-laden shoulders and axillæ or when simple mastectomy cannot be performed without cutting across the growth.

Now what are the reasons that persuaded the surgical staff to discard one of the most fundamental principles of surgery, and why has the experiment continued for so long?

McWhirter pointed out to them that when a patient with breast cancer was examined spread might or might not have occurred beyond the breast. If it had not, simple amputation would cure the patient, and removal of the uninvolved axillary glands could not improve the results. If spread had already occurred to the axilla, the future course of these patients would show that in at least 60% to 70% a further spread must already have occurred or was caused by the surgical intervention to regions out of reach of the surgeon. Since if any of these patients were to be saved it could be only by non-surgical methods such as radiotherapy, and as dissection of the axilla seriously delayed initiation of such radiotherapy, diminished the permissible dose of radiation and might also have other unfortunate effects, it was reasonable to ask that the responsibility of treating all spread beyond the breast, including that to the axilla, should devolve on the radiotherapist.

Why has this experiment continued so long? Basically, because McWhirter's treatment has given considerably better results than the surgeons of this hospital ever achieved by radical surgery (McWhirter, 1952). In general, the method has improved the survival rates by about 10%, and these are survival rates based on all

TABLE I.

All Cases of Primary Breast Cancer Treated in Edinburgh: Five-Year Absolute Survival Rates.

Stage of Disease.	1935–1940.[1]			1941–1946.[2]		
	Total.	Number Alive.	Percentage Alive.	Total.	Number Alive.	Percentage Alive.
Operable	404	194	48	907	526	58
Locally advanced	257	46	18	465	134	29
Distant metastases	123	2	2	234	10	4
Total	784	242	31	1606	670	42

[1] Mainly radical mastectomy.
[2] McWhirter technique.

patients examined, not those accepted for operation, as previously.

Moreover, in a special group, that of cancer in pregnant women, while there was no record of any five-year survivals after radical mastectomy, the McWhirter technique has produced 31% of survivors.

These results, if they could be generally confirmed, would seem conclusive that surgeons should change from radical amputation to simple amputation *plus* radiotherapy. But I regret to say that the surgical world outside Edinburgh refuses to be convinced.

In a very recent article Shimkin and Glenn Bell (1952) report from San Francisco that McWhirter's results are almost identical with those achieved at San Francisco and at the Mayo Clinic by the accepted radical mastectomy, with or without irradiation; and they conclude that "critical evaluation of the evidence at hand does not give radiation any substantial place in the curative attack on carcinoma of the breast. Although it is widely used as a supplement to surgery, its value has not been proved".

I think McWhirter would answer this with the retort that radiotherapy in the United States of America is so little understood and so ill-applied that any figures coming from such a source are useless.

But equally severe criticism comes from other sources. Many surgeons would insist that the comparison of the results in Edinburgh made by McWhirter does not so much give credit to the radiotherapist as cast discredit on the surgeons, whose results were greatly inferior to those obtained in large series of cases by, for example, Gordon-Taylor in London and Harrington in America.

Harrington (1952) has recently reported five-year survivals in cases of primary breast cancer treated at the Mayo Clinic, as 88·2% when there was no axillary spread, and when there has been axillary spread, 36% with radical amputation alone, increased to 39·6% with subsequent irradiation. In the critical pregnancy group, though he groups pregnancy and lactation together, he can show 64·5% of five-year survivals with radical amputation and no radiotherapy if the axillary glands are not involved, and 8·9% of survivors after radical amputation and radiotherapy with involvement of the axillary glands.

Nor will expert radiotherapists accept McWhirter's thesis. While it is universally admitted that he is an expert radiotherapist, and scrupulously honest, and that the completeness of his follow-up statistics is astounding, they will generally insist that they do not know enough about the therapy of breast cancer to feel justified in applying it to an area such as the axilla, which is so eminently suitable for surgical attack.

Finally, in certain hospitals where the method was given a good trial, as by Paterson Ross (1952) in the surgical professorial unit at Saint Bartholomew's Hospital, the results were so discouraging that the method was abandoned and radical amputation was reinstated.

I believe nevertheless that recent pathological investigations, if they do not support McWhirter's idea of simple rather than radical mastectomy, at least show the paramount part that radiotherapy must play in any improvement in results.

In May, 1952, at the Halsted Centenary Celebrations of the Royal Society of Medicine, when Blalock, the successor of Halsted, was chief speaker, and Sampson-Handley, now eighty years old, was present in the distinguished gathering, his son, R. S. Handley (1952) presented the results of biopsy of a mediastinal gland taken from the second or third intercostal space in the course of the radical amputation for carcinoma of the breast.

These figures show that in a large group of patients with apparently operable primary breast cancers, in one-third all nodes were free, in one-third axillary nodes only were invaded, and in one-third axillary and internal mammary nodes were invaded.

This is additional confirmation of a modern view that the axillary spread of cancer of the breast, though it may sometimes extend to the supraclavicular glands, is largely to a blind cul-de-sac, where a very efficient filter exists, while the mediastinal lymphatic spread is the real killing pathway, from which direct spread to liver, lungs and supraclavicular glands occurs.

TABLE II.

	Site of Primary Growth.		
	Inner Half of Breast.	Outer Half of Breast.	Total.
Total number of cases ..	45 (38%)	74 (62%)	119
All nodes free	10 (9%)	28 (24%)	38 (33%)
Axillary nodes only invaded	8 (7%)	32 (27%)	40 (34%)
Internal mammary nodes only invaded	3 (3%)	1 (1%)	4 (3%)
Both groups invaded ..	24 (20%)	13 (10%)	37 (31%)

If we assume, as almost all surgeons do, the ultimate failure of Wangensteen and a few others, who are making a direct surgical attack on this mediastinal pathway, the whole responsibility for saving any of this group rests upon the shoulders of the radiotherapist.

It must be reported then that the major world opinion concerning the controversy started by McWhirter is that while nothing has transpired that should cause replacement of a meticulous surgical dissection of the breast and axilla in all cases of operable primary breast cancer, there is an enormous field for post-operative radiotherapy in all cases in which axillary glands are involved, while the radiotherapist who possesses unusual skill and confidence might well be entrusted also with the treatment of the axilla.

Since McWhirter can obtain results comparable with the best reported for radical mastectomy, the final solution of this argument, as Professor Glenn Bell, of the University of California Medical School, insisted to me, can be reached only when large hospitals possessing expert radiotherapists have faithfully alternated the two methods of treatment

over large series of cases and compared the results. It is much to be desired that in Australian hospitals where these conditions exist this should be done.

Some Newer Aspects of Cancer Treatment.

We are all aware that vast sums of money are being made available for cancer research, and out of this work some improvements in treatment are inevitable.

In a general way I suppose we all realize, when the urologist has a patient with cancer of the prostate and proceeds first to castrate him and then give him large doses of stilbœstrol, he is attacking the cancer through hormonal pathways. Before this treatment was introduced the best result obtainable by radical prostatic surgery was 25% survival for five years. The addition of orchidectomy and stilbœstrol treatment has increased the survival rate to 75% for three years and 60% for five years.

The favourable effects are related not only to the osseous metastatic spread, but also to the primary growth, if it is still *in situ*, and examples were shown in Boston in which a primary spread of the prostatic growth so great as to produce complete anuria by compression of the ureters, necessitating emergency nephrotomy, rapidly regressed under hormonal therapy, till a few weeks later excretion pyelograms were normal.

Since the effect of these procedures is to diminish androgenic activity, it is tempting to postulate that carcinoma of the prostate is a growth whose development is accelerated in an androgenic environment and correspondingly inhibited by its reduction.

The other main producers of androgens are the suprarenal glands, and when the effects of castration and stilbœstrol damping fail, as measured by further metastatic activity, an attempt should be made to reduce adrenal activity. This can be achieved by large doses of cortisone or by total adrenalectomy, and by either of these means reduction of the urinary excretion of ketosteroids to about one-fourth of the original amount can be obtained.

The modern therapy of carcinoma of the prostate therefore includes the following: (i) radical prostatectomy; (ii) castration; (iii) stilbœstrol therapy; (iv) when these fail large doses of cortisone, followed if successful by adrenalectomy; (v) continued administration of cortisone in small doses as a necessary replacement or in large doses for additional damping effect.

In a similar fashion carcinoma of the breast can sometimes be relieved by hormonal therapy. Here again castration and the administration of androgens are most useful prior to the menopause, and stilbœstrol is best in the treatment of old women.

When these procedures fail to control bone metastases good results are now being reported from total adrenalectomy, and in a number of American centres vigorous treatment on these lines is being pursued. The chief exponents of these methods are Huggins, of Chicago, and Blalock of Baltimore, and the latter surgeon has now added an occasional pituitary gland ablation to the methods already mentioned.

The Attack on Cancer by Chemical Agents.

I am not alluding here to the local use of zinc chloride pastes, though I saw these used in America, and on certain skin lesions such as rodent ulcer near the eyelids their use is regarded as superior to other destructive agents or to radiotherapy. The main disadvantage of their use is the severe associated pain. I wish to speak rather of the attack on internal cancer, and especially on liver metastases, by chemicals such as nitrogen mustard. This work is being carried out in the Laboratory of Experimental Oncology at San Francisco (Bierman, 1951*a*). This name designates an institute where human volunteers, all suffering from incurable cancer, submit themselves to experimental treatment. Many lines of investigation are being followed, but the one I wish to discuss arises from the development of great facility in catheterizing blood vessels. Using a specially shaped ureteric catheter, and with portals of entry through the brachial artery or brachial vein, these investigators are able, under fluoroscopic control, to place the points of their catheters almost at will and, for example, arrange that one catheter has entered the hepatic artery and the second the hepatic vein.

By suitable methods it was next shown that certain cancers and their metastases had an abnormal blood supply, with the blood passing so rapidly through the growth as to suggest either permanently dilated arterioles or some form of arterio-venous shunt. In the particular case of the liver this abnormal vascularity results in almost all the blood supply of the hepatic artery passing through the metastatic growths, while the remainder of the liver is nourished from the portal supply.

By incorporating an inflatable balloon on the catheter in the hepatic vein it is possible to pool the liver blood to any desired extent, and in this way a chemical, introduced into the hepatic artery catheter, can be maintained in any desired concentration in relation to the metastases.

When nitrogen mustard is used in various concentrations—and fortunately there is a wide range between the lower and upper points—anything can be made to occur, between no effect and such rapid destruction as will secondarily kill the patient.

But by using a proper dose this institute has obtained 30% of apparent cures of liver metastases, 30% of clinical palliation, but without any real change in the tumours, and 40% of no apparent results.

Dr. Bierman hopes that it will soon be possible so to determine the dosage that the surgeon who finds, for example, a carcinoma of the sigmoid colon with some secondary deposits in the liver, will be able to excise the primary growth and at the same operation inject into the hepatic artery the necessary dose of nitrogen mustard to deal with the liver spread.

Many other chemical agents are under investigation; but I hope I have made it clear that this is a very different proposition from the ordinary intravenous injection of nitrogen mustard, in which, because of the arterio-venous shunt, the tumour is one of the least likely places to receive an adequate dose.

A most interesting sideline to the blood vessel catheterization is some work being done on leuchæmia. Feeling that research on this disease was about at a dead end, Dr. Bierman (1951*b*) decided to test the hypothesis that the high myelocyte count in the blood might be due not to over-production, as Virchow had maintained, but to under-removal. By catheterizing the two sides of the circulation of certain organs, such as lungs or liver, in the non-leuchæmic person and then transfusing leuchæmic blood through the organ, he found that the white cell count of the emerging blood was always normal or under normal. A mechanism evidently existed in these organs which would not permit the passage of abnormal quantities of white cells. The same result occurred when leuchæmic blood was transfused into a leuchæmic patient in his leucopenic phase.

Since it was possible by this transfusion technique to work out the life history of the white cell, it became possible to state that in leuchæmia there is no appreciable increase in the production of white cells, but the high blood count is almost entirely related to their under-removal from the circulation.

Though all this is very interesting it has at present no practical importance, since death in leuchæmia is never related to the large number of the circulating white cells in the blood, but to other elements of the syndrome, such as infection in the leucopenic phase, anæmia and hæmorrhage. It does show, however, how rapidly experiments on human volunteers can elicit evidence that is almost impossible to obtain by other methods.

Cardio-Vascular Surgery.

When I was abroad in 1939 I was fascinated by the great developments in lung surgery, which was then really getting into its stride. Cardio-vascular surgery was still in its infancy, and I witnessed what was regarded as the eighth tying of a patent *ductus arteriosus*, which was then a formidable operative feat.

At this last visit lung surgery was commonplace, having largely reverted to the general surgeon, so that an operation list might place a pneumonectomy between a cholecystectomy and a hysterectomy, each of them being of somewhat similar importance.

Cardio-vascular surgery, though less widely practised, was also becoming common. Tying of the patent ductus now either is an incident in other operations, such as that for coarctation, and occasions no greater concern than the subsequent tying of intercostal vessels, or if it forms an operation in itself may well be delegated by the chief to his assistant.

The making of a new ductus to relieve "blue babies" is equally commonplace, though the overcoming of the backlog of such operations has made them a relative rarity.

The chief attack now, and a very useful one it is, is on coarctation of the aorta, on mitral and pulmonary valvular stenosis, and on aortic aneurysm. Stricture of the aorta of some degree is believed to occur in about one person in every 2000, and relief of the resulting hypertension can be effected by excision of the stricture, followed by direct anastomosis of the cut ends or by the insertion of a graft.

Such repair is rapidly becoming safe, the mortality rate ranging from a general average of perhaps 20% to 4% in the hands of Gross, and an unmatched series of more than 100 cases without a death by Clagett. An operation which I saw this latter surgeon perform seemed very unlikely to increase his mortality rate even though the stricture was in the aortic arch opposite to and involving the left subclavian artery, and there can be few more pleasing sights in surgery than when the occluding clamps are released, to watch the blood course through the absolutely watertight anastomosis, as occurred in this case.

Where end-to-end union is not possible the pioneer work of Gross has permitted the use of suitable grafts, and research work in New York and in Boston, apparently backed by almost unlimited funds, is rapidly determining the best type of graft and the methods of preserving it till required.

The surgical relief of mitral and pulmonary valvular stenosis is also being rapidly extended, and in the case of the mitral valve many patients were being operated on each week in London and in the American centres I visited, with, it was hoped, permanent relief of stenosis.

Basically this operation is simple, consisting as it does of the clamping and incision of the left auricular appendage, and the introduction through this incision of the gloved finger, which, while it plugs the incision, is used, sometimes in conjunction with a knife attached to the finger, to break down and divide the stenosis. After removal of the finger the appendage is again clamped, or a purse-string suture is tightened, and the incision in the heart is repaired. The stenosed pulmonary valve is attacked in a similar way through an incision in the right ventricle.

Now that confidence has been developed in the suture of the aorta, attempts are being made to excise large thoracic and abdominal aortic aneurysms, with subsequent repair of the aorta.

At the Halsted Centenary Meeting in London, Blalock was able to report a number of successes by one of his assistants, and at the Mayo Clinic I saw part at least of a successful nine-hour attack on a large abdominal aortic aneurysm.

These procedures I have so far mentioned require little special equipment or anæsthesia, except an electrocardiographic machine and a defibrillator—a type of electric shock apparatus used to convert ventricular fibrillation to cardiac arrest. In one field only which should repay surgical attack, that of large septal defects, it would seem that progress must await the development of an artificial heart. Such an instrument has been constructed in Philadelphia and used successfully on animals, but there are apparently formidable difficulties in its translation to human surgery.

Developments in Anæsthesia.

Finally, I should like to speak briefly about activities in a specialty which must always interest the surgeon, that of anæsthesia. The practitioners in this field have moved far beyond the rag-and-bottle stage, to become controllers of fluid replacement during operations, and manipulators of such instruments as electrocardiographs, electroencephalographs and oximeters.

Everywhere I went the greatest activity was apparent in the anæsthetic field.

One group was achieving a bloodless field for the surgeon by the use of hypotensive drugs, another group by rapid massive arterial bleeding and the subsequent slow replacement of the blood, whilst most were waiting to see how many maimed brains or fatal cases of anuria would result from such proceedings. Actually the patients did not look anoxic, and when I saw the method used, in a hindquarter amputation and difficult brain operations, the resulting bloodlessness was remarkable.

I was astonished, too, at another school, in which the anæsthetist decided the necessary volume of blood replacement not by measurement of blood loss or the physical signs thereof, but by the readings from a continuous electrocardiograph, rather to the apprehension of the surgeon, who thought the instrument did not tell them to give enough. Yet with this same equipment the anæsthetist had been able to inform the unwitting heart surgeon that he had just clamped a coronary artery.

You have all heard, of course, of the instrument developed at the Mayo Clinic, whereby the actual supply of the anæsthetic to the patient is controlled by a continuous electroencephalogram.

At present all the operating theatres at St. Mary's Hospital, Rochester, are being wired to a central room, where the electrocardiographs and the electroencephalographs will be installed; and I can envisage the time when Dr. Lundy, instead of having to move around between the 18 operating rooms to see how his nurse anæsthetists are getting on, will sit like a controlling engineer before a row of dials, which will be registering the state of the heart, the necessity or not for fluid replacement, and the depth of the anæsthesia of each patient.

Equally with the surgeon, the anæsthetists will be interested in the battle of the relaxants—how in London curare and "Flaxedil" and the rest are being menaced by the continuous drip administration of "Scoline", how in parts of America spinal anæsthesia is as a routine measure combined with light general anæsthesia, while in England it is regarded as dangerous and outmoded, and so on.

Now what interested me intensely was an experience I had at Boston.

After the successful conclusion of an operation for resection of a carcinoma of the œsophagus above the aortic arch in a man, aged seventy-three years, I asked the anæsthetist, Dr. Becher, head of the anæsthetic department of the Massachusetts General Hospital, if he had maintained the controlled respiration by cyclopropane and curare. None of these things, he almost exploded, were ever used in his department. None of the chest surgeons desired controlled respiration, preferring the patient to do his own breathing, and to give cyclopropane to a man of this age and condition would be equivalent to murder, while relaxation was secured without any dangerous drugs by the only known safe relaxant, which was a very well-known substance indeed—ether.

I wondered at the time whether this bias in favour of ether could be related to the fact that this was the hospital in the lecture room of which stands the proud tablet bearing the following statement:

> In this Ether Dome, then the operating theatre of the Massachusetts General Hospital, on October 16th, 1846, the first serious use of ether as an anæsthetic agent was successfully accomplished. The surgeon was John Charles Warren, the anæsthetist W. T. G. Morton, and the patient Gilbert Abbott.

But as I travelled further I found that this was the universal experience in America. In no operation at the Mayo Clinic in which the chest was opened, whether the

operation was to remove a lung, repair an aorta, or mend a mitral valve, was there any controlled respiration, and ether was always the basic anæsthetic agent.

While it was believed that the fear of curare was only a temporary phase, produced by some statistics of the above-mentioned Dr. Becher, who said that it killed the patient once in every 270 operations in which it was used, it was nevertheless very interesting to observe that the widespread development of chest surgery has not demanded any more from the anæsthetist than a capacity to intubate the trachea and to inflate the lung.

And now a final observation. When I was in America in 1939 a nurse anæsthetist told me that she belonged to a dying race and that there would probably be none of them left in ten years' time. Yet I noticed on this visit that not only were nurse anæsthetists the usual givers of anæsthetics in the centres I visited, but the reformer who would have abolished them, Dr. Frank Lahey, of Boston, was almost certainly using them himself. Generally speaking, they are remarkable exponents of the technical art of anæsthetization; but they are also part of the explanation of why England and not America is the chief centre of progress in anæsthesia.

References.

BIERMAN, H. R. (1951*a*), "Intra-arterial Catheterization of Viscera in Man", *Am. J. Roentgenol.*, 66 : 555.

——— (1951*b*), "Studies on Cross Circulation in Man", *Blood*, 6 : 487.

HANDLEY, R. S. (1952), "Further Observation on the Internal Mammary Lymph Chain in Carcinoma of the Breast", *Proc. Roy. Soc. Med.*, 45 : 565.

HARRINGTON, S. W. (1952), "Unilateral Carcinoma of the Breast", *J.A.M.A.*, 148 : 1007.

MCWHIRTER, R. (1952), "Simple Mastectomy with X-ray Therapy", Cincinnati Address, March (unpublished).

PARK, W. W., and LEES, J. C. (1951), "The Absolute Curability of Cancer of the Breast", *Surg., Gynec. and Obst.*, 93 : 129.

ROSS, J. P. (1952), personal communication.

SHIMKIN, M. B., and BELL, G. (1952), "Cancer of the Breast: Analysis of Frequency, Distribution, and Mortality at the University of California Hospital, 1918 to 1947, Inclusive", *Surg., Gynec. and Obst.*, 94 : 645.

SOME ASPECTS OF REHABILITATION AND PLACEMENT OF THE INCAPACITATED WORKER.[1]

By W. E. GEORGE,

Chief Medical Officer, Joint Coal Board, Sydney.

I SHALL define rehabilitation as that part of treatment which leads to the restoration of earning power to the disabled. By this definition rehabilitation includes also the placing of the disabled worker in employment suitable for his physical handicap, whether or not this is the result of injury sustained at his employment. The most important word in the definition is "treatment", and to be successful the rehabilitation of a disabled worker should be part of and continuous with the medical treatment of his condition.

The problem of the employment of the partially disabled worker is now attracting much attention in all countries whose legislatures have adopted modern "welfare State" ideas. Sooner or later, some positive action will have to be taken to ensure that the growing army of pensioners of various kinds takes up some form of work of benefit to the national economy. The lowering of living standards once associated with cessation of work is, in these countries, not so apparent. Thus an essential stimulus for a quick return to work after injury or for putting up with a partial disability has largely been lost. In many instances, workers with perhaps only partial disability are very little worse off financially if they cease their usual work and live upon the various benefits for which they are eligible, *plus* an occasional day's work "under the lap" when they feel like it. As a result of this and other factors to be mentioned later, all too frequently many workers who have had an injury, whether or not it necessitated a long stay in hospital, convalesce physically but not psychologically. They tend to become egocentric, hypochondriacal and dependent. A good rehabilitation scheme must provide positive action to counteract such developments. I feel that it is not necessary for me to stress the damage to the national interest caused by the large numbers of workers who cease work after developing some degree of disablement. At the present time, a large percentage of this disabled group is permanently lost to industry. The objects of rehabilitation are to treat such men and place them in employment, to prevent the partially disabled man from ceasing work, and to ensure the return to work as soon as possible of the injured worker.

Advances in medical knowledge, together with improved methods for the education of the disabled and better prosthetic aids, should all assist in this process.

I should like to quote a portion of a report of a committee on the employability of the chronically ill and disabled to the Commisssion on Chronic Illness in the United States of America (Rusk *et alii*, 1952):

> In the earlier years of this century there was an anatomical concept of medicine. Competence was measured in terms of anatomical perfection. A man was either fit or unfit to work depending on whether or not he was anatomically whole. It was all or none. A man could do the whole job or none of it. He was disabled for all work if he was disabled for any part of it. With the development of the physiological or functional concept and the specialization and subdivision of jobs into their components, the "perfect anatomical specimen" concept of man is no longer valid in determining suitability for employment.

Pre-employment examinations are very valuable and play a most important role in modern occupational medicine, but too often they are used in addition to protect superannuation funds or lessen possible compensation claims. Those making these examinations should have the right to consider the nature of the work the examinee will be required to perform, and a standard of anatomical perfection should not be demanded for jobs which do not require it. Unfortunately, in many industries the issue of qualified certificates for particular types of work raises problems, and an "all or none" standard is still demanded of the examining doctor. Recently a coal worker was found to be suffering from slight pneumonokoniosis which gave him few symptoms and very little disability. Not content to cease working, he applied for and obtained employment as a caretaker-cleaner of the premises of the Commonwealth Bank in the town in which he lived. He was quite fit to do this work and eager to do it. Here was a perfect example of "natural" rehabilitation. However, he was rejected for the position by the examining medical officer because of his pneumonokoniosis.

Under present-day ideals of industrial welfare, a worker should know that, should he sustain injury at his employment or suffer disability from any other cause, there are available along with efficient immediate medical treatment: (i) treatment by which his full earning capacity will be restored to him as quickly as possible after he is discharged from hospital; (ii) training for suitable alternative work which will maintain him and his family at an economic level not inferior to that enjoyed prior to his injury—should he be so disabled that he cannot resume his old occupation; (iii) an organization by which he will be assisted to find suitable new employment after he has been discharged from treatment and his training is completed.

The solution to the problem would then appear to be the comparatively simple one of providing appropriate centres at which the requisite physical training, hardening and morale restoration can be carried out by the appropriate staff and where training for and placement in other occupations can be given and arranged.

[1] Read at a meeting of the Section of Occupational Medicine of the New South Wales Branch of the British Medical Association on October 2, 1952.

Factors Acting Against Rehabilitation.

It is proposed briefly to discuss some of the factors which act against successful rehabilitation and to indicate some of the reasons why there are more difficulties to be overcome than the above statement of the problem and its apparent solution would suggest.

You must forgive me if my remarks refer especially to the coal worker in New South Wales, but I feel sure that, though he may present psychological problems more frequently than do workers in other industries, his treatment should not need to be any different from that of other disabled workers. The partially disabled pneumonokoniotic coal worker does, however, present a special case.

I think disabled workers can be divided into two main groups: (i) those whose incapacity is such that eventually there should remain no disability of a degree sufficient to prevent a return to their accustomed work; (ii) those whose disability will prevent a return to the usual occupation. There are difficulties involved in the rehabilitation of workers in the latter group which do not exist in the former. These men have to be placed in new occupations appropriate to their degree of disability; they may require training for this new work; accommodation for the worker and his family handy to the new place of employment may have to be found; questions of seniority at work and future pension rights may add still more difficulties. Psychological damage associated with these more severe forms of incapacity is greater. These workers may be asked to accept work which they regard as lowering to their status, the new work may separate them from their accustomed associations, and there may be anxieties about such things as future compensation or other payments to which they consider they are entitled, claims for damages or lump sum assessments. Many of these difficulties do not arise among workers in the former group. All that is required of efficient rehabilitation in most of these cases is that, by efficient treatment and encouragement, the period of absence from work is shortened as much as possible and psychological disability is prevented. Experience has shown that among men in this group the results obtained by efficient rehabilitation are usually satisfactory to those who provide it.

Much has been written about rehabilitation in many countries. Reports indicate that, with few exceptions, all schemes have encountered difficulties. In New South Wales these may be greater than they are in most other countries. Our workers' compensation benefits are on a more generous scale than they are in many other countries, especially with regard to the partially disabled worker. Additional benefits provided in the most recent amendments to the *Workers' Compensation Act* (1951) have added greatly to our rehabilitation difficulties. Other factors of less importance are our smaller population resident over greater distances and, possibly, the existence among Australian workers of a certain opposition to discipline and regimentation not so apparent in the workers of other countries. Illustrations in an article I recently read describing a rehabilitation centre for the coal industry in Great Britain indicated that the patients wore a type of uniform. I do not think this would be acceptable here, and I venture the opinion that the Australian inmates of such centres would not work in the institution's vegetable gardens to such an extent that, as stated in the article, "vegetables and fruit are very rarely purchased".

Brief quotations from recent reports illustrate two other problems of rehabilitation, namely, expense and the quality of the work carried out by the partially disabled. The first is from the *British Medical Journal*, May 10, 1952, page 1039:

> *The Fourth Report from the Select Committee on Estimates*, 1951-2 (H.M.S.O., 5s.), contains information and criticism of the working of various official training, rehabilitation, and resettlement schemes. Remploy Ltd. is one such scheme for employing disabled men and about 6000 men now work in 92 factories in all parts of Britain. There are not more than a further 2000 men from whom this company could recruit. The loss per head is in the region of £400 per worker per annum, and the report suggests that, with more mechanization and a different selling organization, many of the factories could do much better.

The following are extracts from the discussion which followed a paper on the "Cleaning of Coal by Hand and Mechanical Means", by W. R. Chapman, Divisional Coal Preparation Engineer, East Midlands Division, National Coal Board of Great Britain (Chapman, 1952):

> *Mr. M. H. Young* (Bestwood).—Has the author taken into account the fact that with hand cleaning the labour employed is based on compensation men and boys? Their wages would be less than in the cleaning plants or washeries. Has that been taken into account in getting out costs?
>
> *Dr. Chapman*.—This is an interesting and very important point, but if we use compensation men at low rates of pay for picking, I should not be surprised if the net cost is not finally more than the cost of using good labour. The extraordinary thing is that, in this country, we put compensation men on the screens. In America the rule is to use only strong active young men for picking because it pays to do so.

Later in the discussion Dr. Chapman said:

> I have already dealt with the question of compensation labour. It is true that compensation men have to be absorbed, but I am far from satisfied that the right way to absorb them is on the screens. Managements fail to appreciate what a tremendous amount of coal can be lost by bad work . . .

Basic Factors and Principles of Treatment.

I propose now, briefly, to itemize and discuss certain basic factors and principles of treatment which I regard as being of essential importance to our subject. All these factors, in my opinion, profoundly influence the reaction of the worker to an injury sustained at his employment. Upon some or all of them will depend the length of time an injured worker will be absent from his employment and, indeed, whether or not he will ever again become a working and useful member of the community. Each of us here present knows how far, in our own particular industry, we fall short of these ideals of correct treatment, and how much the other factors mentioned increase our difficulties when attempting to restore a partially incapacitated worker to his place in the working community.

1. Medical treatment must be efficient. The worker must be made to feel right from the time he is injured that all concerned—his own doctor, his employer and the insurer—are interested in his treatment, his progress and his eventual return to work. Treatment, including any necessary training for other work and the provision of that work, must be continuous from the time of injury. Any period of "drifting" when nothing is done at any stage of treatment should be avoided. Correct medical treatment from the time of injury and "follow up" of the right type will save a lot of time later. Cooperation is essential between the worker's doctor, insurance doctors and specialists. Why should orthopædic specialists who undertake operative treatment be satisfied to return the patient to his own doctor for subsequent treatment and evince no further interest in him? The attending physicians should consider their treatment finished only when the patient is back at some form of work. They should emphasize the capabilities of the injured man to him, not his disabilities. The disabled have much more ability than disability. Opposing medical opinions in courts of compensation, in addition to their tragic effects on the worker, add little to the lustre of the medical profession among the laity. One has often felt that many of these expressed differences could be avoided by the greater use of conferences among doctors who examine the worker on behalf of various interests, a course which would never meet with the approval or assistance of the legal profession. Too many doctors seem to think that if they have assisted in obtaining "compo" for the disabled worker, they have discharged their obligation to him. His medical treatment and future welfare do not appear to interest them. Sometimes one has felt that too many examinations by too many "specialists" have over-emphasized in the patient's

mind the severity of the injury and its possible effects, and thus contributed to a residual functional disability.

2. Delays should be avoided in admitting liability for disability or, in disputed cases, determining liability. Non-payment of compensation on the date due, initial errors in diagnosis and anything else which may give the worker a sense of injury lessen the chances of a quick return to work.

As soon as they graduate and are registered medical practitioners are empowered by law and encouraged by their patients to issue a variety of certificates concerning occupational conditions of which they have no experience. Lack of instruction to medical students in industrial hygiene and the compensation aspects of medical practice contributes to the careless history taking and records and incomplete examinations frequently found when, later, a claim is made that incapacity is the result of occupational injury. Some practitioners never appear to learn how far the ramifications of a lightly given certificate may lead, or what is the sum total of economic and industrial loss that accrues as a result of their certificates. Medical certificates play an important role in modern industry, and it behoves medical practitioners when asked for them to be conscientious in the exercise of their position of trust.

In the coal industry in New South Wales there is legal provision for sick leave, amounting to ten working days *per annum*. This leave may accumulate for up to sixty working days. I am informed that 70% to 80% of all workers take their sick leave (on doctors' certificates) during each year, and most of the remainder take any accumulated leave before they reach the retiring age of sixty years. In some districts the mine managers do not now require the formality of the handing in of a medical certificate of unfitness for work because of sickness. If the worker has sick leave due to him, it is paid for more or less on request. "Sick leave" thus taken represents a loss of about 500,000 tons of coal *per annum*.

3. The return as soon as possible, pending complete recovery, of partially incapacitated workers to some form of work among their usual workmates is most important. Employers should assist in arranging this, though many do not like it. Employers have often said to me: "If you cannot pass him fit for all work, I don't want him back—he will only be a nuisance and I prefer to continue to pay him compensation." The fear that, by agreeing to attempt work which, perhaps, later they may find they are unable to do, they may prejudice a later claim for disability, discourages many workers from an early return to work until they feel that they have not the slightest disability. As a general rule, the longer a worker is off work the harder it is to get him to resume.

4. As far as possible, rehabilitation into other work should be into the same industry as that in which the worker was employed when he was disabled.

5. Unless the disabled worker "wants" economic independence his rehabilitation will be a failure, no matter what is done. Many workers nowadays do not like their work. It is just a job to be got through. The presence of some disability furnishes an excuse which is acceptable to the worker himself, his family and his friends, for ceasing all work.

6. The older the disabled worker, especially the closer he is to a fixed retiring age with pension benefits, the less successful will prove attempts at rehabilitation. Men over the age of forty-five years will, as a rule, not be successfully rehabilitated into a new industry. They may successfully perform different work in the industry in which they have grown up.

7. Rehabilitation is easy when there is a big difference between earnings and compensation *plus* other benefits available for disablement. The more closely future earnings approximate to compensation and other benefits the fewer will be the rehabilitation successes. At Broken Hill, with a lead bonus of £3 per shift, there is no rehabilitation required.

8. Every injured worker presents an individual problem. No routine plan of training or treatment can be drawn up. Age, education, domestic background, the presence of physical disabilities in addition to those associated with the injury, the attitude of the worker towards work in general and training for new work in particular, and his general aptitude are only a few of the essentials which have to be considered for each patient.

9. For any rehabilitation scheme the fullest cooperation of the employers, the insurers and the workers' industrial unions must be obtained in advance. Before the scheme is started all proposals should be discussed at conferences between these parties, and the scheme, as finally adopted, should have the assured enthusiastic support of all groups.

10. Benefits for disability being what they are, it is felt that, for rehabilitation to succeed in the more difficult cases, it will be necessary to demonstrate to the injured worker that it will be "worth his while" to be rehabilitated.

The above principles apply in the rehabilitation of all injured workers, but in the New South Wales coal industry the following additional factors also contribute difficulties: (*a*) the retiring age of sixty years; (*b*) the pension rights of the worker on retirement; (*c*) the system of seniority which is an established custom of the industry; (*d*) the lodge system at each mine and the number of unions with members in the coal industry; (*e*) the small number of men employed at the average coal mine, the lack of "light" types of work and the small number of "surface" jobs.

Personal Factors in Rehabilitation.

Some general considerations having been discussed, mention will now be made of personal factors involved when the rehabilitation is considered of a worker suffering from disability which will prevent him from resuming his usual occupation. It will be obvious that the programme for successful rehabilitation will depend upon an accurate assessment of the disabled workers' physical qualities, mental characteristics and vocational abilities.

As far as his physical qualities are concerned, the first thing to be ascertained is whether any additional medical or surgical treatment is advisable. Orthopædic treatment may diminish disability or enable a more useful prosthesis to be worn; the services of a physiotherapist may be necessary to improve his general condition and harden his muscles, flabby after prolonged stay in hospital, and some investigation and treatment of psychological difficulties may be advisable. Kessler states that 50% of all persons who meet with an industrial accident react neurotically.

Along with medical considerations such as these, there will have to be investigations by means of which an ability evaluation can be made. Inquiry should first be made into his ability to perform the usual functions of daily living, such as dressing, eating and walking. His general ability will also have to be investigated, and such things ascertained as his adaptability, aptitude, education, attitude towards recovery, emotional and mental qualities and domestic background.

A Programme for Rehabilitation.

It is only when he has been brought to the best possible bodily and mental state and an estimate of his ability has been obtained, that a satisfactory programme for rehabilitation can be organized. This may require, according to circumstances, such things as special educational or workshop training or the provision of special equipment or premises for the carrying on of his future work. It is most important that the rehabilitation programme should not terminate until the worker is satisfactorily settled in his new job.

The following are some suggestions to encourage successful rehabilitation after injury sustained at employment:

1. A special inducement will have to be devised to make it "worth the while" of a permanently partially disabled man to continue at some form of employment within his capabilities. It is suggested that provision should be made under legislation for the payment of a continuing pension proportional to the degree of permanent disability remaining as a result of the injury. This pension should be paid to the worker when he resumes full employment and

should continue irrespective of any future earnings either at his old work or in a different occupation. (Compare pensions paid under the Commonwealth *Repatriation Act* and under the *Workmen's Compensation Act* of Ontario, Canada.) This suggested continuing pension is necessary to encourage "rehabilitation employment" because of the relatively high compensation benefits a worker may now receive for permanent partial disability. Psychologically it should prove very satisfactory to the disabled worker. He feels that he is receiving "something" for his employment-caused disability, and I venture the opinion that medical practitioners will be surprised, if some such scheme is evolved, at the numbers of men who will resume their old work in the presence of disabilities which most doctors now would readily certify as precluding such work.

2. As soon as it appears that, as a result of injury or sickness, a worker will have a permanent disability which may prevent him from returning to his usual work, he should be interviewed, in an informal way, by a committee consisting of (*a*) a representative of his union, (*b*) a representative of the employer, (*c*) a rehabilitation medical officer or, in the case of the Joint Coal Board, its local medical officer, (*d*) the worker's own medical officer if desired, and (*e*) a representative of the Commonwealth Employment Service. This committee will assure the worker of its assistance in finding work for him when he is well enough, decide if any additional medical advice or treatment is necessary, assess his attitude towards future employment, explore the possibility of suitable future work for him either at his old place of employment or elsewhere and, in short, let the disabled worker see that an active interest is being taken in him and his eventual recovery. All members of the committee should combine in the attempt to provide some form of work suitable for the disabled man when he is discharged from medical care.

3. In some industries adjustments may be necessary to protect pension and other rights of the disabled man. For example, this would be necessary in the coal industry. A simple amendment of the appropriate Act would ensure that a coal worker who accepted employment outside the coal industry would not forfeit his pension rights.

4. All unions should agree to accept the transfer to them of partially disabled men from other unions, should this be necessary to provide a suitable job for a disabled worker.

5. Employers should agree to give the fullest cooperation in placing partially disabled workers in employment suitable for their capabilities.

6. Before the above or any other proposals to encourage rehabilitation are adopted, the fullest cooperation must be ensured between employers, insurers and workers in the scheme finally adopted. Procedure must be agreed upon and the scheme entered upon with enthusiasm.

It is for the Government to decide whether the extra production obtained as a result of the continuous pension scheme proposed justifies the extra expense. As against this, under the *Workers' Compensation Act*, as now amended, the partially permanently disabled worker is already entitled to quite considerable and continuing benefits if he does not work, especially if the employer is unable to provide him with work within his capabilities. Many such workers will not resume employment unless they can see that they will be much better off working.

Unfortunately, in the New South Wales coal industry, the compulsory retiring age for all workers is sixty years. On reaching this age, even successfully "rehabilitated" men in that industry must cease their work and will then, no doubt, live upon the pension payments for which they are eligible *plus* such continuing compensation benefits as they are still entitled to as a result of their old injury.

During the past three or four years, by arrangement with the Commonwealth Government, certain coal workers, disabled as a result of injury sustained at their employment, have been sent to the Rehabilitation Centre at Jervis Bay. All costs of this treatment are paid by the insurer. The charge for treatment at the centre is at present £9 2s. per patient per week, and transport costs including leave visits to their homes are considerable. The average stay for treatment is about two months, but some patients have stayed at the centre for six months or longer. An average of about 15 or 20 coal workers have been sent to this centre yearly, and the insurance company is of the opinion that in many instances good results have been obtained—that is to say, the injured worker has returned to some form of work in the industry though this was considered unlikely prior to his treatment at the centre. However, recently not so many men have been sent to the centre. The insurance company states that there are several reasons for this, such as the fact that greater use is being made by them of the services of physiotherapists practising in coal fields areas. Some men sent to the centre recently have not been happy and have returned home. The odd coal miner at a centre so far from his home and friends feels isolated.

This appears to indicate that, as far as the coal industry is concerned, properly equipped physiotherapy centres for each district are all that is required for the successful rehabilitation of most of its injured workers. Larger centres, such as Jervis Bay, are necessary for the rehabilitation treatment and training of the more severely incapacitated worker whose injuries are such that he will probably be unable to resume any form of work within the coal industry. For the reasons mentioned above and unless some additional incentive is given, the outlook for successfully rehabilitating men permanently partially disabled as a result of injury sustained at their work is not considered good. With the increased cooperation of employers now being given, many of these men do continue at work in the coal industry at lower grade jobs with "make-up" of compensation, but they will all cease work anyway when they reach sixty years of age. However, it is considered that action along the lines indicated above will shorten the average period of incapacity for work after injury and will raise the percentage of men who do eventually return to work, though some permanent disability may persist.

Partial Disablement with Pneumonokoniosis.

The problem of the future working life of the non-disabled or partially disabled coal worker with pneumonokoniosis must now be considered.

Before this is discussed a brief account will be given of the symptoms and disability which may be associated with slight degrees of pneumonokoniosis as it affects the coal worker.

The most usual effect of simple pneumonokoniosis is that it makes the affected worker unusually short of breath on exertion. Often this breathlessness is the only effect, the worker being normal in every other respect. In most cases the breathlessness is present only when the man is hurrying or walking up hill. Other symptoms which may be present are cough and attacks of tightness in the chest not unlike asthmatic attacks. However, the majority of men with signs of slight pneumonokoniosis have no symptoms of ill-health and claim no disability for work. Many others complain of slight symptoms whilst stating that they can still satisfactorily perform their work. Only a few claim any disability for work which impresses the examiner as being more than slight in degree. This disability is usually the result of associated emphysema and bronchitis. The evaluation of the genuineness of symptoms of minor disability is difficult. With liberal compensation and retiring benefits, many men approaching the retiring age of sixty years complain of functional symptoms of disability in the presence of only minimal radiological changes in their lungs and no other signs of respiratory disease.

Roger Even (1950) goes to the extent of ignoring functional symptoms. "To interview an examined person, especially one who has received prior advice, on the importance of his functional troubles, amounts to asking him what he prefers—a pension of 10% or a pension of 40%."

To a skilled coal miner who has had thirty years' experience and who has a minimal amount of fibrosis of his lungs—and who will probably die of old age long before there is any serious disablement as a result of this—it is extremely disturbing to be given the advice "to get out of the mine and never return because of the dust". Even if he gets "compensation", is he as well off physically and mentally as he would be if he continued at his work?

Let us first examine the possibilities of settling such men in a non-mining occupation where their capacities for employment can be used to the advantage of production.

Since about 1943 Great Britain has made valiant attempts to employ in other occupations the large numbers of pneumonokoniotics and silicotics, mainly from the South Wales coal fields, who have been compulsorily suspended from further work in coal mining—anywhere underground or in dusty processes on the surface—by the certificates of medical boards. Between 1930 and 1948 about 30,000 men were so certified. In 1943 an "Advisory Committee on the Treatment and Rehabilitation of Miners in the South Wales Region Suffering from Pneumoconiosis" was set up.

In 1945 a treatment and rehabilitation research centre was organized by the Medical Research Council. One of the main subjects of research undertaken by this centre has been the problem of medical rehabilitation and suitable forms of alternative employment for miners disabled by pneumonokoniosis. In addition to this research work, a Board of Trade working party recommended, in 1945, that a small number of factories should be built by the Government in selected areas in South Wales to give employment to the large numbers of disabled unemployed—particularly pneumonokoniotics. It was suggested that the management of these factories should employ 50% of disabled persons as a minimum, and, in recompense for this obligation, the rent normally chargeable for the factories would be reduced by 50%. As far as can be ascertained, about eleven of these factories are in production, but no figures of their success in the employment of pneumonokoniotics have been seen.

In spite of such efforts to place partially disabled pneumonokoniotics in other employment, the fact remains that in July, 1948, a new statutory scheme was introduced which limited the power of compulsory suspension by pneumonokoniosis medical boards to cases of pneumonokoniosis accompanied by tuberculosis. In cases of disability from pneumonokoniosis alone, the boards now advise the miner (*a*) to continue in underground employment under "approved" dust conditions and subject to further periodic examination, or (*b*) to find alternative employment in dust-free conditions on the surface of the mine or elsewhere, again subject to periodic medical examination.

The individual may accept or not the advice offered, but entitlement to disablement benefit is unaffected by the decision either way. The fact that such a modification had to be made suggests that attempts to place and keep pneumonokoniotics in suitable work outside the coal industry had not proved very successful. It is stated that about 75% of certified pneumonokoniotics have been advised as above. About 50% of them continue to work underground and receive a partial incapacity pension as well as their normal wages.[1] This confirms that, in many cases of pneumonokoniosis of coal workers, the disability is not great. Failure to place the large numbers of pneumonokoniotics into suitable employment outside the industry, the large numbers of men idle and their poor economic condition because of low compensation benefits, were probably responsible for the 1948 reversal of policy.

From the medical viewpoint, the British have dealt with the problem of rehabilitating the partially disabled pneumonokoniotic coal worker under four headings: (*a*) assessment, (*b*) encouragement, (*c*) physiotherapy, (*d*) antispasmodics.

[1] At October 15, 1951, in South Wales and Monmouthshire there were 11,169 certified subjects of pneumonokoniosis, and of these only 2520 were unemployed (Fletcher, 1952).

Assessment.—The degree of disability is assessed by clinical examination, and various physiological tests have been experimented with in an attempt to find one which will give results at least more accurate than those obtained by clinical impressions.

Encouragement.—Although many men were found to have only a slight degree of physical disability, they had been labelled with the word "pneumonokoniosis" and imagine themselves to be suffering from a progressive and rapidly disabling disease. Appropriate reassurance and encouragement are given to alleviate this.

Physiotherapy.—Graded general and breathing exercises are used to improve the physical condition of the men, frequently in poor general condition as a result of considerable periods of idleness.

Antispasmodics.—Bronchial spasm is considered to be an important factor in the causation of disability, and it is claimed that this is relieved by the prescription of a suitable antispasmodic.

Other factors which have been found to influence the problem of placing the man in employment suitable to his physical and mental ability are age, degree of disability, mental ability and previous industrial experience and training.

Age.—Most subjects of pneumonokoniosis are in the older age groups (forty-five to sixty years). Men of these ages have proved to be difficult to retrain, and employers are reluctant to engage them when younger men are available. However, it is claimed that, providing the work is within the capability of the pneumonokoniotic, he makes a good worker.

Degree of Disability.—The degree of disability varies greatly from case to case. Some pneumonokoniotics are indistinguishable from average men apart from their X-ray appearances, about one-third are too breathless on exertion to do heavy manual labour, and many are fit only for the lighter forms of industry.

Mental Ability.—The capacity to learn a new job varies. The new work must interest the man. On the whole ex-coal workers will be fit only for unskilled work, and this is frequently heavy.

Previous Industrial Experience and Training.—Very few miners have experience in any other industry apart from mining.

The following types of work may be stated by the pneumonokoniotic to be unsuitable:

1. Heavy manual labour, especially lifting. He will claim that this makes him breathless.

2. Outdoor work. He will claim that cold, wet, fog or changes in atmospheric conditions make him cough or increase his breathlessness.

3. Work where there is dust or fumes. Whilst the form of the dust or fumes may not be harmful to the fit man, the pneumonokoniotic will claim that such conditions increase his cough and dyspnœa.

4. Distance to travel to work. The pneumonokoniotic will complain that he cannot hurry or bustle, that he is exposed to cold and wet when waiting for a bus or train, *et cetera.*

Such functional symptoms are difficult or impossible to refute if they are employed as excuses for not accepting employment or for dissatisfaction with a new job. It would appear then that light factory work under sheltered conditions is the only type of work likely to appeal to and be continued with by the vast majority of partially disabled pneumonokoniotics should they cease their mining employment.

In Great Britain attempts to place large numbers of pneumonokoniotics in alternative employment do not appear to have been successful. As Meiklejohn stated recently, the work offered is not in the tradition of the pits. The miner is not suited for it and is handicapped by such things as the following:

1. The employment itself. He cannot do heavy work. The lighter jobs are more skilled, and he has no experience in the fine manipulative processes of factory work. He has to be paid more than the usual youth or female labour for such work. The factory may be remote from his place of abode.

2. His real desire for work. This will depend upon the amount of compensation and other benefits he receives if he does no work. It must be made "worth his while" to continue at any form of work, or there must be some other stimulus.

3. His physical condition. The worker is gradually becoming older, and in the presence of increasing disability from the cause or from other degenerative changes, his pulmonary condition can always be made the excuse for ceasing work.

Summing up the problem, if the above factors are added to those mentioned earlier, it will be agreed that the chances are not good of successfully rehabilitating into another industry the partially disabled coal worker with pneumonokoniosis. It remains, then, to decide whether these men should be withdrawn from their employment when slight pneumonokoniotic changes *plus* some functional symptoms of slight disability exist, or whether they should be permitted and encouraged to continue at their usual work, subject to periodical medical examination to determine whether or not the work is harming them in any way.

It must be remembered that most of these men are in the fifty to sixty years age group and, under existing legislation, are not permitted to continue to work in the coal industry when they reach the age of sixty years. Should a coal worker decide to cease work before reaching that age because of a degree of incapacity as a result of pneumonokoniosis, the coal industry loses some years of his coal production. Should he decide to continue at work, either in the coal industry or outside it, he will probably, even if successfully placed in alternative employment outside the coal industry, cease work and accept his compensation payments *plus* pension benefits when he reaches the retiring age.

Men in the fifty to sixty years age group who continue at their usual work will be better off economically and will not deteriorate physically and psychologically as do so many of those who cease work. It is felt that they should be encouraged to continue at their usual work though slight disability may exist. It has taken more than a generation for their pulmonary changes to develop, satisfactory alternative employment is difficult to find, and they will now be subject to periodical medical review. Men in younger age groups, however, who show pneumonokoniotic changes should, even in the absence of disability, be interviewed by the rehabilitation committee above described and every effort made to place them in situations in the coal industry where there is no dust hazard, or to train them for work outside that industry. These men must have increased susceptibility to inhaled dust. The younger the affected man, the more likely it is that he will prove suitable for some form of training.

The suggested continuing pension should be paid to those men who continue at work after they have been certified to have some disability as a result of pneumonokoniosis. As has been indicated, this is being done under similar circumstances in Great Britain. It is agreed that men receiving such payment and continuing at work will, in most instances, be financially better off than they were previously; but so is the ex-serviceman who receives a repatriation pension for a disability caused by war service which does not prevent him from earning full wages at his occupation. The pneumonokoniotic coal worker has sustained a disability as a result of his industrial service. It is for the legislature to decide whether the advantages gained by keeping these men productively employed until their compulsory retiring age is reached justify such payments. When this aspect of the problem is examined, it must be remembered that, should they decide to cease work, these men will still have to be paid partial compensation *plus* "make-up" to full compensation, and in this case their coal production will be lost.

Conclusion.

In conclusion, it is hoped that sufficient has been said to indicate the many difficulties involved, under present-day circumstances, in keeping a permanently partially disabled man at some form of work and also to stress the importance of efficient medical treatment and control of other factors if the period of incapacity after injury is to be reduced to a minimum; here an ounce of prevention is worth a ton of cure, and rehabilitation can play its most useful role. There will be many disappointments and a few successes. I do not think that it is usually worth while wasting time and money on attempts to rehabilitate the injured worker who has already had months and years of idleness. To end with a paradox: the worker who is successfully rehabilitated after disablement does not require rehabilitation; he rehabilitates himself.

References.

CHAPMAN, W. R. (1952), "Cleaning of Coal by Hand and Mechanical Means", *Tr. Inst. Mining Engineers*, 3 : 323.

EVEN, R. (1950), "Silicosis: Method of Examination and Schedule of Invalidity", Proceedings of the Third International Congress of Experts on Pneumoconiosis (I.L.O.).

FLETCHER, C. M. (1952), correspondence, *Colliery Guardian*, April 4, 1952.

RUSK, H. A., GARRETT, J. F., VICARDI, H., junior, and TAYLOR, E. J. (1952), "Employability of the Chronically Ill and Disabled", *J.A.M.A.*, 149 : 595.

REHABILITATION AND PLACEMENT OF THE INCAPACITATED WORKER.[1]

By G. G. BURNISTON,

Acting Principal Medical Officer, Commonwealth Department of Social Services, Sydney.

DR. HOWARD RUSK, Chairman of the Department of Rehabilitation and Physical Medicine, New York University College of Medicine, and Consultant to the United Nations Organization, describes rehabilitation as "the restoration of the handicapped to the fullest physical, mental, vocational and economic usefulness of which they are capable".

But rehabilitation as a term has lost its significance in the post-war years, since it has been applied to so many efforts of reconstruction.

In the sense in which we are discussing the problem, the term "third phase of medicine" is more apt, the first phase being "prevention", the second "specific surgical or medical treatment" and the third that part of patient care which takes him from "bed to job". It is the phase which is still largely neglected in our hospitals and in industry, although I believe that there is an increasing awareness of the need to coordinate existing facilities to ensure proper attention to all the factors mentioned in the definition I have quoted.

In considering the question of the rehabilitation and placement of the incapacitated, one must regard it as two problems: (i) that of the temporarily incapacitated, and (ii) that of the permanently incapacitated.

The Temporarily Incapacitated.

Successful rehabilitation of the temporarily incapacitated group depends firstly on good surgery or medicine, with unity of control and continuity of treatment by the responsible surgeon or physician; secondly on never letting the patient become "flabby" mentally or physically through prolonged and enforced rest; and thirdly on proper care of his domestic problems (arising through cessation of income and fear of future unemployability), which frequently require as much attention as do the physical aspects of the disability. Success, in fact, depends on the

[1] Read at a meeting of the Section of Occupational Medicine of the New South Wales Branch of the British Medical Association on October 2, 1952.

combined efforts and team work of surgeon or physician, nurses, therapists, medical social workers, employer, the patient's family and the patient himself.

I do not believe that we have yet achieved this team approach in this country.

Where some degree is success is achieved, it can usually be attributed to the individual skill or enthusiasm of a surgeon, of a therapist, of a social worker, of a rehabilitation officer, or of an employer.

A greater degree of success can be expected when the team approach to rehabilitation is accepted and instituted in our hospitals and a proper link is made with employment groups. If this is achieved there will be fewer instances of temporary incapacity becoming prolonged into permanent incapacity, and the development of the "chronic invalidity" complex in some of our patients. The hospitals alone cannot hope to provide the total treatment of the incapacitated.

We can learn a great deal from overseas countries in their rehabilitation methods in hospitals and in industry to hasten the early return to employment of injured workers. In the large hospitals of Britain and America, we find the rehabilitation department an integral part of treatment facilities.

The rehabilitation department consists of coordinated occupational and physical therapy sections, the therapists working under the supervision of a physical medicine specialist. The physical medicine section of the hospital, the physician or surgeon in charge of the case, and the almoner service consult daily together. Frequent clinical meetings, usually weekly, are held, and liaison is maintained with employment agencies through the almoners. In the United Kingdom this is generally with the disablement resettlement officers of the Ministry of Labour and National Service, who in turn frequently make contact with industrial medical officers and rehabilitation officers of the individual industries.

In America we find a similar sort of service in such institutions as the Department of Rehabilitation and Physical Medicine at the Bellevue Hospital, New York.

In all these institutions the plan is to commence rehabilitation as soon as possible after the injury. If it is known that the prognosis for resumption of original employment is good, the almoner member of the rehabilitation team at the hospital, by consultation with the disablement resettlement officer or industrial medical officer, ensures that the injured worker's job is kept open for him. Thus he can be reassured, and economic worry banished, as early as possible.

As soon as practicable in his treatment, occupational therapy and physical therapy are instituted to prevent muscle wasting or the development of mental boredom through prolonged inactivity, both of which considerably delay recovery and undermine morale.

Under these conditions it is possible at the conclusion of the recumbent stage of the patient's illness, when he is able to help himself, to accept him back into industry to undertake useful work under controlled conditions.

An example of how hospital and industry can work in ensuring the successful transition from hospital to factory in this way can be demonstrated at such organizations as the Austin or the Vauxhall motor works in the United Kingdom. These firms try to rehabilitate their injured workers within their own working environment —from the moment a worker injures himself until he is able to return to his pre-accident job. It has been found that this is better from the psychological point of view, as it avoids the contrast between the somewhat unreal Utopian atmosphere of a convalescent centre and the type of work to which the patient is accustomed and to which he will ultimately return.

The chief medical officer of the Vauxhall works speaks of the "therapeutic value" of work which never allows the injured person to pass out of the real atmosphere of the factory, which, after all, is part of the worker's life, and he considers that if the disabled man can continue at work in the knowledge that he is a self-supporting economic unit able to pull his own weight, it is a far more powerful incentive towards recovery than stereotyped exercises in a physical therapy department of the standard type of occupational therapy commonly employed elsewhere. Those of us who have had experience in this field will readily endorse this.

The essential features of the Vauxhall scheme have been the introduction of the surgeon specialist into intimate contact with the industrial environment, the building and equipping of a special remedial exercise machine shop (known as the re-training shop), the appointment of a whole-time rehabilitation superintendent and a shop foreman, and the establishment of a physical therapy department and a follow-through clinic.

This rehabilitation unit works in close contact with a nearby hospital and uses it for consulting orthopædic and plastic services. Close liaison is also maintained with general practitioners in this area. In this way they have built up a rehabilitation team consisting of a consulting surgeon, industrial doctor, rehabilitation superintendent and industrial physiotherapist.

As soon as injured employees of the Vauxhall works have completed their active hospital treatment, they return to their old employment through the re-training shop. Equipment in the shop is so designed as to enable the injured workman to obtain the value of repetitive exercises and of graded work formed on standard production machines modified for the individual's use. The Vauxhall works doctors realize that in all cases the important factor militating against recovery is the time during which functional activity is depressed or prevented; and while they recognize that there are certain therapeutic indications for rest, these indications are far less common than has been believed in the past. They particularly refer to the notable absence of circulatory disorders, reflected in rapid healing rates of bone and soft tissues with consequent reduction in joint stiffness and loss of muscle tone.

While in the re-training shop the men are encouraged to be positive about their recovery, which is reinforced by individual supervision. They are paid the standard rates of pay, but in the case of bonus workers 10% in lieu of loss of earnings is added by way of financial incentive.

All the appliances in use in the workshop are made in the shop itself, and many of the patients often suggest improvements in the various ones employed.

By combining the talent of the engineer with the skill and judgement of the surgeon, there is now emerging a form of engineering occupational therapy which is yielding remarkable results, both in functional recovery and in reduction in lost working time.

It is interesting to note that during the last five years well over 10% of the 12,000 Vauxhall works employees have had personal experience of the re-training shop as patients.

So far as I am aware, no scheme similar to this exists in Australia. Its development on an experimental basis would be well worth while. To achieve success there would need to be complete understanding and intelligent cooperation between the patient, the treating authority and employers' and employees' representatives.

The Permanently Handicapped.

As to the second group I have mentioned—the permanently handicapped—what is being done for them? The re-training shop at the Vauxhall works also points to a solution of the problem involved in handling this group. Virtually the same principle of treatment is adopted for these people, in that a positive programme of treatment is maintained and a positive outlook on the part of the patient is encouraged. When he is transferred from hospital to the re-training shop, the same programme of graduated activity is arranged, a careful study of the individual's work tolerance is made, and whenever possible the permanently incapacitated workman is returned to suitable employment elsewhere in the works.

When we review rehabilitation of the permanently handicapped in other countries, attention is directed to methods of the Workmen's Compensation Board of Ontario. In 1921 a select committee of the Provincial Legislative Assembly was set up to study the needs of the cripples of the Province of Ontario. This committee recommended that:

> As the Workmen's Compensation Act already provided many of the services needed for rehabilitation, a rehabilitation programme should be developed under the Act.

As a result, in 1924 a rehabilitation section was incorporated in the *Workmen's Compensation Act* of Ontario.

The Workmen's Compensation Board of Ontario has the sole responsibility for the claimant's medical care, and they must see that the medical care provided is the best obtainable, and that everything humanly possible is done to ensure that he reaches maximum recovery in the shortest possible time.

How does the Board work? In every case in which the original accident report indicates that the claimant will have permanent disability, the case is immediately referred to the Rehabilitation Board. Early contact is made with the man and his family. He is assured of the Board's interest in his welfare. Every attempt is made to remove his doubts and concern for the future. Early contact with the man's employer is made whilst the accident is still fresh in mind and the employer's sympathies are strongest. His promise of cooperation is obtained. The Board maintains frequent contact with the man, through a rehabilitation officer, during his hospital treatment. It can provide after-care and physical rehabilitation at its own clinic, where a work tolerance test can also be carried out, if necessary. Suitable employment is also found.

The figures I have of the Board's activities show that in a five-year period 760,000 accidents were reported to the Board, but only 317 cases during this period were closed with the patient described as "not rehabilitated". Included in this number are the following: total disability (100% pension), 103; refused to cooperate (many of these being subsequently employed), 99; old age, 56; ill health and previous disability, 46; left the Province of Ontario, 13.

The Ontario Compensation Board claims that in their Province industrial accidents are no longer a major cause of great poverty, and they claim this to be due to the nature of their *Workmen's Compensation Act*, the wisdom of the Boards which administer the legislation, the high standard of the medical service, the cooperation of labour and industry, and the rehabilitation facilities provided by the Board.

British Columbia and Quebec have similar rehabilitation provisions in their compensation schemes.

One realizes, after examining these examples of overseas rehabilitation endeavours on behalf of the incapacitated worker, that there are great deficiencies in the rehabilitation services in this country. However, a beginning in the development of rehabilitation has been made, and the Commonwealth Department of Social Services has, since August, 1948, been administering a rehabilitation service for civilians who are in receipt of certain social services, such as an invalid pension or sickness benefit.

This scheme was originally introduced in 1945 for ex-members of the forces with disabilities not considered due to war service but serious enough to prevent their carrying on in employment. Moreover, experience during the war years had shown the benefit of well-integrated treatment and rehabilitation services for servicemen. This experience and the excellent reports on the employment of disabled in industry in England during the war, when there were great manpower shortages, proved the value of developing our knowledge of, and continuing services for, the rehabilitation of the disabled.

And so, with the closing of the interim rehabilitation scheme for ex-members of the forces, it was decided by an amendment of the *Social Services Consolidation Act* to continue rehabilitation for the groups I have already mentioned. Special provision was also made in the Act for the inclusion in special circumstances of disabled employees of Commonwealth and State authorities. Under Part VIII of the *Social Services Consolidation Act*, the Director-General of Social Services may, on behalf of the Commonwealth, provide or arrange for the provision of:

1. The treatment and vocational training of—
   (*a*) pensioners and claimants for pensions;
   (*b*) beneficiaries and claimants for benefits who, but for that treatment and training, would be likely to become unemployable; and
2. Such facilities and services as are necessary in connection with treatment or training referred to in either of the last two preceding paragraphs.

The treatment and training referred to in (1) and (2) may include (i) medical, dental, psychiatric and hospital treatment (whether as an in-patient or as an out-patient), physical rehabilitation in the form of physical therapy, occupational therapy, remedial physical training, prevocational training and other treatment under medical supervision, (ii) the payment of tuition fees and other fees in connexion with training, and (iii) the provision of amenities incidental to treatment or training.

A condition of eligibility for invalid pensioners and sickness beneficiaries is that the physical or mental disability must have existed for a period of not less than thirteen weeks, appears likely to continue for a further period of not less than thirteen weeks, is a substantial handicap to the individual's engaging in a suitable occupation, and is remediable. From the time of acceptance, rehabilitation benefits can be provided for a continuous period of three years in each case.

It is not intended in this paper to describe every detail of the provisions of the rehabilitation service. These have been described elsewhere in a booklet published by the Department, which is readily available.

But I would like to mention something of the process of rehabilitation and the placement of the disabled in employment. It is now standard practice for new claimants for invalid pension to be immediately referred to the rehabilitation branch of the Department. The same swift referral is arranged for claimants for sickness benefit.

It is to be appreciated that invalid pensioners and recipients of sickness benefit on the whole present different rehabilitation problems. An invalid pensioner has usually been disabled for a much longer period, in some instances since birth, and may not have had any employment experience or very interrupted employment experience. Sickness beneficiaries, on the other hand, are usually recently disabled and have had employment experience either of a skilled or of an unskilled nature. It is probable that many of these beneficiaries, without a well-integrated rehabilitation service, would eventually become invalid pensioners.

Each referred person is, whenever possible, personally interviewed and examined at the rehabilitation service centres in the cities. Where this is impossible, detailed medical reports are obtained from the patient's doctor and a social worker's visit is arranged in order that the purpose of the rehabilitation scheme can be explained to the patient and his family.

In considering the suitability of a person for rehabilitation, the possibility of permanent disablement and its effect on employability must be considered in relation to the available suitable employment in the man's home town.

It is also important to have the cooperation of the individual and the cooperation of his hospital or medical attendant, and this is usually obtained when the sound economics of rehabilitation are appreciated. In instances in which this cooperation is lacking, rehabilitation is hindered and, in many instances, prevented. For hospital patients coming to our attention valued assistance is given us by the hospital almoners, who are able to effect smooth transition from hospital to rehabilitation centre.

As early as possible after a person is accepted for rehabilitation, a rehabilitation plan is formed. The first step in the plan, after completion of active medical or surgical treatment in hospital, is the admission of the patient to a rehabilitation centre. The Department main-

tains residential rehabilitation centres for men and women in each State and a day-attendance centre in each capital city except Tasmania. In some States residential and day-attendance centres are combined, as, for example, in Brisbane and Perth.

On admission to a rehabilitation centre, each patient presents an individual problem and is treated accordingly, a programme of properly balanced occupational therapy and physical therapy being arranged.

We realize that eventually it is the incapacitated person's abilities that decide employment, and the programme at rehabilitation centres is primarily intended to develop skill and confidence in what abilities remain. For the severely permanently handicapped, the programme is also designed to assist them to meet the demands for daily living, such as mounting buses and trams, self-bathing, using toilets, crutches, wheel-chairs, and so on. For the less handicapped, of course, particularly for individuals who have been recently disabled, the rehabilitation centre provides a programme of physical rehabilitation and after-care which can diminish physical disability to a negligible degree.

A rehabilitation centre has considerable advantages over the physical therapy and occupational therapy departments of hospitals in that facilities allow a more active form of treatment. At our rehabilitation centres the gymnasium is the hub of the physical therapy section, and emphasis is placed more on the active forms of treatment, that is, teaching the patient to help himself and encouraging him to use his limbs in active exercises and sports from the simple to the more complex types.

It is interesting to see how rapidly patients attending this section not only recover lost physical function but also develop skill and confidence through enhanced neuro-muscular coordination.

In our occupational therapy workshops at the centres we place emphasis on the use of the heavier type of workshop activities such as can be found in woodwork and metal workshops. Light crafts are not entirely neglected, for many of the patients coming to our attention have not had this form of therapy prescribed for them in hospitals or in their homes through lack of its availability.

The aim of our occupational therapy programme at the rehabilitation centre is, again, the establishment or reestablishment of confidence through the development of undiscovered skills or the re-development of lost skills.

Treatment at the centre is progressive, and by means of regular medical review and consultation between the doctor and therapists, activities for individual patients are upgraded and made progressively difficult. In most cases, particularly with the more severely handicapped patients, it is routine practice to prepare work tolerance prognosis reports. We have found these particularly valuable and, in some instances, of more practical application than vocational guidance reports.

This is understandable, for during a man's or a woman's stay at the rehabilitation centre, we get to know the patients as individuals. We study their personalities, their attributes and their faults. We observe their ability to work agreeably with other people and to join in community activities, of which there are many at the centre, their powers of concentration and perseverance, their ability to work for long periods at painstaking manual work, in noisy environment, and so forth. We can, in fact, form a very good estimate of the individual's employability.

The duration of residency at the centre varies, of course, according to the disability. It may be as short as six weeks or as long as eighteen months.

The types of patients treated at the centre vary from those with the purely physical disability (such as post-paraplegic and poliomyelitic conditions and severe fractures) through the psychosomatic type of disability to the purely neuro-psychiatric type of condition. Indeed, in most of the patients with physical disability, and particularly those disabled for many months or years, there is a large psychological overplay in their disability, and we are up against the complex of "chronic invalidity". In these cases it is this psychological aspect of the disability which is most difficult to overcome and which results in prolonged stay at the centre.

As early as possible in the rehabilitation programme at the centre, an employment plan for the future is worked out. At each centre there is a resident education and training officer, who has frequent discussions with the doctor and with the patient, so that, as far as possible, the employment goal is always kept in view throughout treatment.

Contact is made with employers, either directly or through the Physically Handicapped Persons' Section of the Professional Services Division of the Department of Labour and National Service. Frequently, when rehabilitation centre treatment ceases, training for employment is arranged as a course or as "on the job" training. The latter is decided by personal arrangement with the employer. In most cases employment is arranged simply by selective placement.

It is worthy of note that the rehabilitation of the patient towards employment may have involved a considerable amount of personal readjustment, such as forming a decision to leave his home to live in an area where a greater range of employment is available. His family's attitude has had to be readjusted also, and our social workers play no small part in promoting this change of attitude.

When employment is settled, the Department maintains contact with the individual for a period of up to six months to ensure that placement is successful. Should a breakdown occur during this period or subsequent to this period, the Department has ways and means of assisting the individual.

Our scheme does not provide at present for the employment under sheltered conditions of those workers too incapacitated to take their place in normal industry or commerce.

The Act states a condition of eligibility to be that the disabled person must be capable of resuming fully remunerative employment under normal industrial conditions within a period of three years from the commencement of rehabilitation benefits.

This lack of provision of sheltered employment facilities in our scheme is, I believe, a major deficiency. It would appear at present that we must depend on non-governmental agencies to provide this, and these agencies are sadly lacking. To develop them effectively will require the intelligent cooperation of governmental, employer and employee groups.

In England there is Remploy Limited (formerly the Disabled Persons' Employment Corporation), which is a non-profit-making company established by the Government to provide employment facilities for registered disabled persons who can work only under special sheltered conditions.

In 1950 there were 86 of these factories in operation, six being established for the tuberculous. In all, these 86 factories employed 5067 severely disabled workers, although they could accommodate in all 7759. Remploy planned at that time 92 factories to employ, in all, 8000 severely disabled persons.

Remploy also operates a homebound workers' scheme in connexion with eight of its factories, and at the end of 1950 the number of homebound workers employed was 159. Under this scheme, however, there was a very large turnover of workers, many being unable to continue because of the progressive nature of their disabilities.

There has been adverse criticism of Remploy, particularly on the financial side, and an effort is being made to improve their business administration. However, one cannot criticize the sound principles of keeping the severely handicapped productive, happy and off a pension.

I have attempted in this paper to give a picture of the major rehabilitation efforts in this country and abroad. This is, of necessity, a sketchy picture because of the

extensive nature of the problem. However, successful rehabilitation of a patient depends ultimately on his physician or surgeon, who, regardless of the type of disability, does not end his responsibility when the acute phase of injury or illness has been cared for. When physicians and surgeons are fully aware of the importance of the "third phase" of medicine and assume as much responsibility here as in the earlier therapeutic phase, then we will be a long way forward in preventing "chronic invalidity" and in ensuring that our severely disabled patients are able to take their place in the community and enjoy the privileges of work.

Acknowledgements.

I am indebted to Mrs. J. Love (Librarian) and Miss E. Will (Research Officer), of the Central Office of the Commonwealth Department of Social Services, for their assistance and advice in preparing this paper.

Bibliography.

"The Disabled in the Modern World", Proceedings of the Fifth World Congress of the International Society for the Welfare of Cripples, Stockholm, September, 1951.
"The Rehabilitation of Disabled Workers", speech given by Mr. John Campbell, Rehabilitation Officer, Workmen's Compensation Board of Ontario, October, 1947.
Great Britain: Ministry of Labour and National Service—Report, 1950. London: Her Majesty's Stationery Office, 1951.

OBSERVATIONS ON BILIARY CALCULUS ULCERATING INTO THE SMALL INTESTINE.

By L. I. BUBT,
Brisbane.

HAVING operated upon seven patients who had suffered from a gall-stone ulcerating into the small intestine, I decided to attempt a follow-up of these patients on the following lines: (*a*) their immediate post-operative health —approximately two months; (*b*) their health in later years, involving the period 1945 to 1951; (*c*) the fate of the fistula.

The immediate follow-up alone was satisfactory. However, much emerged from the experiences which proved of interest. Detailed case histories are omitted; only those points which it is thought are instructive are included. All except one were public hospital patients, all women, and all aged over sixty years, except one, who was aged forty-five years.

Of these seven patients, the immediate post-operative health alone was established in an acceptable manner. Two more recent patients (1949) returned on request for cholecystography and a barium meal examination. A third replied to a letter, and gave an unsatisfactory history of two years of symptoms obscured by cardiac disease. Of the others, one died after operation, one died of intercurrent disease, and the remaining two could not be traced.

As was expected, cholecystography gave no evidence of a functioning gall-bladder, but a barium meal examination revealed the presence of a fistula in one of the two patients who returned after an interval of three years.

Brief Description of Cases.

The difficulties in diagnosis were reflected in the duration of the illness before the patient was referred for surgery and in the various pre-operative diagnoses.

The duration of symptoms before the patient's admission to hospital varied from one to four days. The time from admission to hospital until operation varied from "immediate" (one case of long duration before admission) to four days. The provisional diagnosis on the patient's admission to hospital was as follows: large gut obstruction, two cases; small bowel obstruction, three cases; hæmatemesis from peptic ulcer, one case.

The seventh case was one of cholelithiasis and fistulæ, and will be mentioned in more detail.

In only one case was the diagnosis of gall-stones given pride of place in the differential list. This was the last of the series, and presented as "intermittent" small bowel obstruction, no abdominal scar or hernia, and a clear-cut history of previous "gall-trouble".

The patient who suffered from hæmatemesis was admitted to a medical ward and was given blood transfusions. Pain had been present for two days on her admission to hospital. Abdominal distension called attention to a possible obstruction, and on the fourth day (or sixth after onset) a surgical consultation was requested. This patient died on the fourth post-operative day from peritonitis due to breakdown at the intestinal suture line and gross distension of all small bowel. Post-mortem examination also revealed that hæmatemesis was from the duodenal fistula.

The patient who had cholecystitis and cholelithiasis was the most interesting. She was admitted to hospital for cholecystectomy. There was a large calculus in the gall-bladder. There were three fistulæ—one into the jejunum and two into the duodenum, all of which would admit a forefinger. The jejunal loop was dissected off the fundus, the aperture in the jejunum was closed, the calculus was removed, and the other two fistulæ were discovered and examined. Cholecystostomy only was performed. This was in May, 1949. Her immediate post-operative health was good. Since then she has had some vague symptoms of discomfort and flatulence, but of insufficient severity to cause her to seek relief.

Three years later a barium meal examination showed that a cholecyst-duodenal fistula was still patent.

One other patient was investigated in a like manner. Symptoms after three years were negligible, cholecystography showed the expected findings, and a barium meal examination failed to reveal a patent fistula. Whether this still exists is unproven, as the demonstration of the fistula is difficult.

The Diagnosis.

Difficulties in Diagnosis.

If the gall-stone is impacted high in the small intestine, a diagnosis of small bowel obstruction should be made early. When the gall-stone has moved on with relative ease, there may be long periods when the patient appears to be recovering. These patients are often not referred for a surgical opinion until days have elapsed. When impaction finally occurs in the lower part of the ileum there is gross distension of the upper intestinal loops, and a clinical diagnosis of large gut obstruction was made in two such cases. The occasional passage of some fæces or flatus or response to an enema, and periods of relief from pain are mostly responsible for the delay. (The results of an enema are always liable to be more deceptive than of use in any bowel obstruction.)

When the clinician first examines a patient with abdominal colic and vomiting, small bowel obstruction is of course in his mind. I found that the factor which caused this diagnosis to be put aside most often was the absence of an abdominal scar or hernia.

Aids to Earlier Diagnosis.

The value of auscultation of the abdomen is soon appreciated by all who have to make decisions for patients suffering from abdominal pain. If this was practised more assiduously, bowel obstructions would often be diagnosed earlier. The combination of ileus in some loops and peristalsis in others is characteristic. Earlier use of radiography would have resulted in earlier diagnosis in at least five of these cases.

Treatment.

General Measures.

The correction of fluid and electrolyte loss and of osmotic pressure is of first importance. Corrective measures employed in this regard, together with removal of the obstruction, may still prove inadequate. It will be realized that gross distension and advanced ileus are common. The reason is that as the calculus passes on, an area of bowel capable of peristalsis and absorption is provided which gives partial relief. The final impaction, especially when

it occurs towards the lower part of the ileum, produces an acute obstruction which is superimposed on already existing distension. The paralytic ileus which supervenes involves gross distension from which the bowel cannot easily recover. This distension involves the intestinal suture line. The paralytic ileus may be irreversible, or peritonitis may occur at the site of the removal of the calculus.

Early intestinal intubation may be the answer. I believe it should be used in the treatment of all patients who, it can be expected, will develop a paralytic ileus. I prefer the Miller-Abbott tube. The main difficulty in its successful use arises from waiting to be certain that it is essential. Failure is mostly the result of attempting to pass a tube only as a late and desperate measure.

Operative Treatment.

I have never liked the prospect of incising and later suturing the distended proximal part of the bowel. Nor has the "milking back" of an impacted stone appealed to me. This can be difficult and occasion some trauma. The technique mostly adopted has been to make an incision in collapsed bowel distal to the calculus and running just on to it. If the calculus can be broken up easily through this incision, so much the better. (This was possible in only one case.) The gall-stone is then rotated so that the distal end is extruded through the incision. It will be realized that some of the bowel wall at the level of the calculus impaction will be involved in the closure.

When the intestine about the calculus appears severely damaged and distension is great, it is suggested that the gall-stone be "milked" into the distended loop and removed through an incision there, and well above this an ileostomy performed of the Wangensteen modification of the Witzel type to provide a non-distended loop during healing. A fine tube with numerous side perforations in the lumen is advised. This method has been used so far without regret. A large tube with too generous infolding can result in subsequent obstruction.

The Fate of the Fistula.

It has been observed that cholecystostomy is a procedure which may provide adequate relief from symptoms of cholecystitis and cholelithiasis sometimes for years, and yet the drainage lasts only for days. Here we have a large fistula into the duodenum usually, which provides drainage of the gall-bladder for an unknown period. One patient at least has been known to have this fistula still present after three years. With a patent cystic duct one would expect that it would slowly close, and with a stricture of the cystic duct that it might remain open permanently owing to passage of mucus from gall-bladder to duodenum. Certainly a long period of relief can be anticipated. Cholecystogastrostomy and cholecysto-duodenostomy are procedures which have been used in the treatment of cholelithiasis (Gurgian-Cecconi, 1950).

Conclusions.

1. The symptoms from disease of the gall-bladder are completely relieved in the first few months. It might reasonably be supposed that this state of affairs would continue for as long as the fistula remained patent and for an indefinite period thereafter. The total duration of relief from any severe symptoms can be expected to run into years, if there is no severe associated pancreatic disease. Recurrence of symptoms would depend upon (i) closure of the fistula, (ii) new calculus formation, (iii) attacks of cholecystitis, (iv) disease of the pancreas.

2. Cholecystectomy need not be considered unless the fistula was to close and calculus formation occur in time to come. Regular follow-up should be requested. It would certainly be safer for future cholecystectomy to wait on closure of the fistula.

3. None of the patients suffered from cholangitis. There were no "biliary crises". I believe that such occurrences, which have been noted in internal biliary fistulæ, occur from exacerbations of preexisting infection of the bile passages, or obstruction at the stoma, or in cholecyst-gastrostomy.

Summary.

1. An account is given of a follow-up of cases of biliary calculus ulcerating into the small intestine.

2. A brief description of cases is given.

3. Some difficulties in and aids to diagnosis are discussed.

4. Suggestions are made as to treatment.

5. The fate of the fistula is discussed.

6. An attempt is made to come to some conclusions from the observations.

Acknowledgements.

My thanks are due to Dr. A. D. D. Pye for permission to refer to patients operated on at the Brisbane General Hospital, and to the Records Department for their courtesy in collecting case histories, and also to Dr. Val McDowall and Dr. J. R. Adam for the radiographic studies of patients.

Reference.

GURGIAN-CECCONI, L. (1950), "Late Results of Treatment of Gall-stones by Cholecystogastrostomy or Cholecysto-duodenostomy", *Arch. ital. mal. app. diger.*, 16: 387. Abstracted in *Abstracts of World Surgery, Obstetrics, and Gynecology* (1951), 9: number 6.

THE ADOPTION AND FOSTERING OF CHILDREN.

By MARJORIE GILCHRIST,
Assistant Psychiatrist, Child Psychiatric Clinic, Department of Mental Hygiene, Victoria.

THIS article is concerned chiefly with the prevention of behaviour disturbances in adopted and foster children. After seeing a succession of these children with behaviour disorders, one feels very strongly that the factors which tend to be responsible should be better known, and the disturbances therefore prevented, or at least treated in the early stages.

When disturbances occur in children after their placement with new parents, it is frequently found that the adoptive or foster mother, or the child, or both have shown signs of instability at the time of the placement, and that this has been overlooked or disregarded. The mental health of prospective adoptive or foster parents, and of a child if he or she is to be placed when some months or some years of age, needs careful investigation. Factors which are likely to affect the mental health of the new parents or of the child must also be considered.

The "Parents".

In deciding that the mental health of prospective adoptive or foster parents is satisfactory, one must have judged their personalities and intelligence to be within normal limits. One must have considered also that their attitude to children and child behaviour and their motives for wishing to adopt or foster a child are healthy. In addition, their age, physical health and housing and financial position must have been judged to be satisfactory, to prevent these factors from causing undue strain upon the mental health of the "parents" after the placement of a child with them.

The assessment of the personalities of the prospective "parents" is helped by inquiring into the relationship with their parents and siblings, and with any children of their own. A consideration of their past illnesses, as well as their school and employment history, is also valuable as an indication of their degree of security and adjustment.

When the prospective "mother" has not a stable personality, she may be helped by psychiatric discussions. Unless she responds, adoption or fostering of a child is, of course, contraindicated. The poorly adjusted "mother" soon finds difficulty with the care of a child, and disturbances in the child are precipitated and a vicious circle

is set up. If separation from the "mother" is then necessary, the child may be further disturbed.

Where the adjustment of the prospective "mother" is regarded as being on the borderline of normality, but other factors are satisfactory, adoption or fostering of a child is practicable if the "mother" can be given adequate support and guidance. She will have less difficulty in managing a baby adopted very soon after birth than a baby or young child who has been in an institution for some time, and she should be advised accordingly.

The prospective "mother" is frequently childless. It should be realized that if there is no physical cause for the sterility, psychological reasons may be present. These must be considered when the assessment of her mental health is made.

After adopting a child, a "mother" who has been sterile for some years may become pregnant. If the "mother" has little reserve of mental health and is faced with the care of another child soon after the adoption, she may be unable to supply the emotional needs of both children. The older child, that is the adopted one, suffers more, and emotional disturbances result. It is essential, therefore, unless sterility is due to a definite physical cause, that adequate contraceptive measures be undertaken by the "parents" after the adoption or fostering of a child. This should be for at least nine months after adopting a very young baby, and until the older baby or child has settled down with the "parents".

Those "parents" who are selected for the adoption or fostering of a child who has been deprived of parents for some time, or who has already shown evidence of emotional disturbance, should be exceptionally stable people. They should be aware of the difficulties which may arise in their management of the child. They should be capable also of giving a wealth of affection to the child, and be able to deal with difficult behaviour without withdrawal of their affection. This is not easy unless the "parents", and the "mother" in particular, have had a secure and happy childhood and have an understanding of the needs of children.

The motivation of prospective "parents" may be the desire to have a companion for their children or for themselves. The only motive, however, which can result in the successful placement of a child with new parents is their wish to love and care for the child without thought of immediate reward to themselves or their family.

The Child.

Let us consider the children who become available for adoption or foster home placement. When a mother is not married, consent for adoption of the child may be given immediately after birth. It is fortunate that these babies can usually be placed with adoptive parents in the first two or three weeks of life, so that the mother-child relationship is carried on. In some instances the baby is placed in a babies' home or other institution soon after birth. Some months or years later the mother may wish to have the child adopted or may lose interest in or desert the child without giving consent for adoption. In the latter case a foster home placement may be possible after a period. Other children who become available for adoption or foster home placement may have been with their mother or with both parents for some time. The conditions which have necessitated the separation of these children from their parent or parents have often produced insecurity in the children. Many of them go into institutions and are adopted or taken into a foster home from there. Their stay in the institution may be of some years' duration.

An institution may give a certain amount of security to the child, but it is extremely difficult, particularly with the young child, for it to provide a substitute for the mother-child relationship within the family, which is essential to normal personality development. This is mainly due to changes of staff and to insufficient personnel. It is of considerable advantage to the child in an institution to have continuous contact with a parent, and particularly with the mother. Unfortunately this usually does not occur in the case of children who become available for adoptive or foster homes.

The baby who is separated from the mother and under group care may soon develop symptoms which are the result of this, but which are not usually recognized as such. Dietetic upsets, unexplained pyrexia, sleeplessness, excessive crying and inadequate response to affectionate handling can occur because of the baby's need for more affection and attention. The toddler may show in addition overactivity, head banging, rocking, temper tantrums, delayed bowel and bladder control and poor speech development. The older child who has been in an institution for some time with little or no contact with the parents almost invariably exhibits undue aggression, anxiety or inhibition in some form.

It is apparent, therefore, that unless a child is adopted at birth or has had a secure relationship with the mother until the time of the proposed adoption or foster home placement, he or she is likely to be a somewhat disturbed child. It will be some time then, under the best conditions, before a stable relationship is formed with the new mother. The development of this relationship may be upset by the birth of a child to the "mother" comparatively soon after the placement, or by early separation from her for a long period.

Because of the amount of individual attention they need, adopted or foster children react badly to the presence in the adoptive or foster family of a child who is younger or who is particularly dependent upon the mother. There may be overt aggression shown to this child or a defiant attitude and attention-seeking behaviour exhibited toward the "parents".

The severely disturbed child who is placed with new "parents" can cause them considerable distress. The "parents" often state that the child does not appear to respond to affection and to approval, when this is justified, by some improvement in behaviour. The experience of those working in residential clinics for disturbed children is similar. There the response is found to be slow, in spite of particular attention given to a child by one member of staff, and their combined efforts to be as tolerant and understanding as possible. The question arises, therefore, whether one should expect any family to adopt or foster a child who shows evidence of a severe disturbance, even though that child desperately needs parents. Behaviour such as extreme disobedience, stealing, undue aggressiveness and destructiveness is not readily endured for long. If the "parents" cannot carry on, and return the child to the institution, they are often extremely upset at having failed with the child.

Psychiatric treatment over a long period may be necessary for even moderately disturbed children who are placed in adoptive or foster homes. In addition, the "parents" must be understanding and affectionate people, and there must be no possibility of sibling rivalry developing in the family unit, if these placements are made with any hope of a successful outcome.

The more severely disturbed children should ideally be treated in residential child psychiatric clinics and placed with "parents" only when sufficient improvement occurs.

The predicted or estimated intelligence of children suitable for adoption or foster home placement should be at least average, and should correspond so far as possible to the intelligence of the "parents".

Educational difficulties are frequently encountered with older adopted and foster children. Some are functioning below their actual level of intelligence because of their previous restricted environment or because of emotional disturbance. Others have specific difficulties with one or other of the basic subjects, though the results of mental tests show average or more than average ability. The adopted or foster child of school age may therefore find progress in ordinary school grades difficult. This should be recognized at the outset, and special help given with the younger ones. Where opportunity grades and remedial reading and arithmetic classes are available they should be

used, when necessary, for those children aged eight years and over. Thus undue pressure upon the child at school and at home is avoided, and resulting behaviour disturbances are prevented.

Summary and Recommendations.

1. In the selection of adoptive and foster parents, and of children for adoption and foster home placement, the mental health of the prospective "parents" and of the child, unless he is in the first two to three weeks of life, must be considered in detail.

2. The prospective "mother" who is sterile, without apparent physical cause, may have a severe underlying psychological disturbance and be unsuitable as a parent.

3. Whenever the prospective "mother" has obvious symptoms, whether psychosomatic or purely psychological, adoption or fostering of a child should not be advised, unless there is a response to psychiatric treatment.

4. If there is some insecurity in the prospective "mother's" personality, but not sufficient disturbance to debar her from adopting a child, she is likely to have least difficulty with a child adopted when two to three weeks old, and she should be advised accordingly.

5. The "mother" who has been sterile, though there is no physical cause for the sterility, may become pregnant soon after she has adopted a child. Adequate contraceptive measures should be undertaken, therefore, for at least nine months after a two to three weeks old baby has been taken into the home, and until an older baby or child has settled down with his new parents.

6. The motivation of prospective "parents" is extremely important. The welfare of the child must be their main consideration.

7. The adoptive or foster child should be the youngest member of the family at the time of the placement, and any other child or children in the family should not be over-dependent upon the mother.

8. The predicted or estimated intelligence of the child and the intelligence of the prospective "parents" should correspond as far as possible.

9. Severely disturbed children should be given psychiatric treatment, preferably in a residential clinic for children, before adoption or foster home placement.

10. Those "parents" who agree to take a moderately disturbed child or one who has been deprived of parents for a considerable time should be exceptionally stable people. They should be prepared for possible difficulties in their management of the child.

11. Adopted or foster children aged under three years should be taken regularly to an infant welfare sister, general practitioner or pædiatrician. Whoever undertakes the supervision of the child should recognize the "mother's" need for support, if she is a somewhat insecure person, and know the difficulties which may be associated with the care of a baby or young child who has been separated from his or her own mother for some time.

12. Adopted or foster children aged over three years should be examined regularly by a child psychiatrist or at a child psychiatric clinic, unless the child has been with the mother continuously to the time of the placement with the new parents and has presented no problem in behaviour or development. If the child is of school age, a careful assessment of intelligence and educational achievement should be made before the child is placed. Opportunity grades and remedial classes in reading and arithmetic should be utilized if necessary. The contact with the school should be continued by the clinic until the child is adjusted educationally, as well as with regard to any behaviour difficulty.

13. The greatest mistakes in adoption and foster home placements are made when the mental health of the prospective "parents" and of the child are not properly assessed, and when the insecure "parent" who may appear, on superficial interview, to be of satisfactory personality is given a child who already shows evidence of considerable emotional disturbance.

Acknowledgements.

I wish to thank Dr. V. P. Johnson and the staff of the Child Psychiatric Clinic for their help in the preparation of this article.

Reference.

BOWLBY, J. (1951), "Maternal Care and Mental Health", World Health Organization Monograph Series.

COUGH, FAINTNESS AND SYNCOPE.

By M. GLICK,
Sydney.

ADAMS (1936) reported a case of laryngeal vertigo because he considered it "of interest and on account of its rarity". In the same article, he reviewed the history and literature of the condition at that time, being able to find accounts of about 30 reported cases.

The term "laryngeal vertigo" had originally been coined by Charcot in 1876. Charcot was of the opinion that the starting point of the sequence of events leading to loss of consciousness was an irritation of the afferent nerves of the larynx, analogous to the vertigo of Ménière's disease. There has since been much diversity of opinion as to the exact mechanism of the condition about to be described.

In Adams's report he refers to several publications involving causes as far apart as epilepsy, laryngeal spasm and increase of intrathoracic pressure. Negus (1929) quotes Starling's book, in which it is stated that forcible expiration with a closed glottis (the Valsalva manœuvre) can cause disappearance of the radial pulse and circulatory standstill. Adams divided the cases into the following three groups: (i) those in which coma follows severe and prolonged coughing and is accompanied by extreme distress and dyspnœa; (ii) those in which, after a laryngeal aura, coma with clonic movements occurs; (iii) those in which a slight attack of coughing preceded by a tickling sensation in the larynx is followed by momentary coma without clonic movements of any kind.

That these three groups are all part of the same clinical entity I hope to convey.

My own introduction to this disorder was at a time when I was unaware of the condition, and it occurred in a close relation.

At the time he was aged fifty years, a plethoric moderate drinker and heavy smoker with a barrel chest, emphysema and chronic bronchitis. Sitting after dinner one evening, he was enjoying a good joke when his hearty laughter changed to a fit of coughing. My attention was urgently brought to him, as he had slumped in the arm-chair in which he was sitting, his face puce coloured, and he was jactitating in the manner of an epileptic. He was deeply unconscious. The clonic contractions involved the whole of his body, and his pulse was impalpable. I rapidly removed his denture, kept his jaws apart and had him laid on a couch, by which time he was awake and alert and asking why we were all looking so alarmed. He was subsequently submitted to a full cardio-vascular and respiratory investigation which failed to reveal any specific cause for the episode. He has repeated the occurrence once since, but admits to a feeling of dizziness often during a bout of coughing. The attacks have sufficiently impressed him so that he is now more moderate with regard to his food, alcohol and tobacco.

Not long after the foregoing occurrence, and after I had become aware of the nature of the condition, I came across a second case.

This time the patient was a much younger man, aged only thirty-five years. He had recently had a cold with a persistent laryngitis, which he still had when he came to see me. A few days prior to my seeing him he had been sitting in his office at work and sucking a lozenge. Despite the lozenge, he had a tickling sensation in his throat and was coughing to clear it as the telephone rang. He had to get up from his chair to reach the telephone, and presumably stood upright quickly, as far as he recollects still clearing his throat. He never reached the telephone, but found himself —he doesn't know how much later—lying on the floor just in front of the chair, feeling quite well but not knowing

what had happened. This man was tall, of medium build, perhaps a little overweight, a heavy smoker, but almost teetotal.

I thought at the time, in view of his build and habits, that he had probably had a vasovagal attack, but I believe now that the occurrence was a case of cough and syncope precipitated by rising suddenly during his bout of coughing. He has never done it again to my knowledge.

My third case occurred since I have been in Australia.

Mr. S.H., aged forty-three years, came to me early in July, 1952, with the following history. A week previously, whilst he was seated at dinner with his wife, she told him an amusing story, at which he laughed heartily. His laughter promoted a fit of coughing and he became "red in the face" and fell forwards across the table. According to his wife, he was unconscious for only a few seconds, not long enough for her to get round from her seat opposite him. By the time she reached him, he lifted his head and asked her why she looked upset. This man is a well-built heavy smoker and moderate drinker, who can play thirty-six holes of golf without distress. A full physical examination revealed a chronic granular and œdematous condition of the pharynx, and a few added sounds at both lung bases. His blood pressure was 110 millimetres of mercury, systolic, and 70 millimetres, diastolic, and an X-ray film of his chest was clear and an electrocardiogram was normal.

This case so fitted in with what is still wrongly called laryngeal epilepsy, or laryngeal vertigo, that I was stimulated to find out what further had been written on the subject since my previous cases in 1948.

Baker (1949) has published an excellent article, to which I would refer anyone interested, in which he collected a series of personal cases, and analysed the published data of 177 cases in all. His picture of the type of person who manifests this condition fits fairly closely with two of my cases. He describes him, since the patient is usually a male, as a plethoric, overweight, often obese, middle-aged man, who indulges well in food, alcohol and tobacco. Emphysematous and with a chronic cough, these individuals curiously rarely are additionally affected with arteriosclerosis and hypertension. Associated with the above features often go a rough voice and a frequent warm laugh which often leads to a bout of coughing. Baker reviewed the literature fully, and of his own nine cases all but one fitted well into his description of the type of person. His conclusions were that all the cases described, though variously diagnosed, were a single clinical entity. That the origin is a form of epilepsy arising as a primary cerebral disturbance is unlikely. Baker reports that in only four of the 177 cases he reviewed was there any previous personal or family history of epilepsy. Additionally, Rook (1946) found normal electroencephalograms in all his cases.

Engel (1948), in an excellent monograph on the physiological and psychological considerations in fainting, has gone into all the aspects giving rise to loss of consciousness. In his chapter on fainting due to fall in arterial blood pressure, he has a section on the syncope due to increase in intrathoracic pressure with coughing. I feel that the condition we are considering invariably fits into this symptom-complex.

The simplest application of this phenomenon is illustrated by the Valsalva manœuvre. Engel has shown that intrathoracic pressures as high as 90 millimetres of mercury can be obtained in this way. If they are sustained for half a minute or more, the resultant obstruction to cardiac filling may lead to a progressive fall in cardiac output and arterial blood pressure, resulting in loss of consciousness. He points out that if in addition the blood volume is low, or there is any disturbance of peripheral vasomotor tone, fainting may occur at a much lower intrathoracic pressure. The latter fact is important when one is considering a patient who has fainted during some sustained strain such as pushing or lifting a heavy object. In the examination of such a person it would be helpful for completeness of the picture to assess the competency of the total circulation and of the postural reflexes.

Engel describes the case of a man, aged forty-two years, who showed all degrees of laryngeal vertigo, depending on the severity of the coughing bout. This man was subjected to various tests. During the carrying out of the Valsalva manœuvre with the patient recumbent, his face became congested, and in fifteen seconds he lost consciousness and had a brief convulsive seizure. His arterial blood pressure, measured with an intraarterial needle, fell below 50 millimetres of mercury, at which it remained for eight seconds when the convulsion occurred. An electrocardiographic tracing at the same time revealed an unchanged sinus mechanism, but there were no effective stroke outputs during the ten seconds before the convulsion. During moderately severe coughing in the recumbent posture, sufficient to produce confusion but not unconsciousness, the right ventricular pressure, measured by cardiac catheter, reached levels over 200 millimetres of mercury whilst the arterial blood pressure fell. These pressures were also obtained during coughing with a bronchoscope *in situ*.

This last-mentioned feature may have some bearing on an occurrence which I have occasionally noted during bronchoscopy. Usually it occurs in heavy smokers—heftily built males, in whom satisfactory local anæsthesia is difficult owing to their chronic pharyngo-laryngitis. Once the bronchoscope has been inserted, often with difficulty, any further manipulation of the instrument seems to evoke a fit of severe coughing. On these occasions I have noted that the coughing fit may stop abruptly and the respirations become quiet. I hope to try to find out whether this is due, as I believe it may well be, to a transient loss of consciousness, such as occurs in the syndrome we are considering.

Engel suggests that spasm of the pulmonary artery may be a contributory factor in the loss of consciousness. McCann *et alii* (1949) endeavoured to elucidate this point, but their results were inconclusive. They refer to the condition as tussive syncope, which is more appropriate but would not include the minor cases.

Parkes (1951) links the article of Professor Sharpey-Schafer and colleagues (1951) on "The 'Mess Trick' and the 'Fainting Lark'" with what he chooses to call "the elusive will-o'-the-wisp of medical literature, laryngeal epilepsy". Both "the mess trick" and "the fainting lark" are productive of a fall in arterial blood pressure and thus of syncope. The former is a modified Valsalva manœuvre and the latter a combination of this manœuvre with orthostatic hypotension.

Of the various theories put forward, all the evidence is in favour of a cardio-vascular mechanism for the occurrence of this syndrome. The observations of Baker, and the experiments of Engel, McCann *et alii* and Professor Sharpey-Schafer *et alii* all support this.

The presenting symptom is cough and is the factor common to all cases. The effect of the coughing is to raise the intrapleural pressure and obstruct the venous return through the *venæ cavæ*. This is shown by the suffusion of the face and neck. The blood flow through the lungs is diminished as the intrapulmonary pressure is raised. Continuance of the increase in the intrapleural pressure reduces the left ventricular filling, which lowers the cardiac output. Cerebral congestion may produce the dizziness and confusion, the "light-headedness" referrred to, but rarely causes unconsciousness. Lowering of the cardiac output causes the fall in arterial blood pressure and loss of consciousness. As soon as the patient loses consciousness, the cough ceases and the intrapleural pressure falls, the cerebral anæmia being at once relieved. The unconscious stage rarely lasts longer than a minute, usually for only a few seconds. Recovery is rapid and complete, and the patient can continue where he left off, much less perturbed than the observers. Tongue biting and incontinence of urine and fæces do not occur. The minor attacks are similar but only give rise to giddiness and stop short of unconsciousness.

The sequence of events is intensified when the lung tissue has lost a considerable amount of elasticity and when the chest has become fixed as in emphysema; hence the predominance of males, since they are more addicted to tobacco and alcohol, which lead to the chronic cough,

which in turn leads to a rigid chest with emphysema. Death is practically unknown in this condition and treatment is relatively easy. After adequate investigation of the cardio-vascular, respiratory and central nervous systems, with negative findings, reassurance can be given. Avoidance of the respiratory irritants mentioned may not be very acceptable, but so far, in my limited experience of this condition, a second attack silences any queries about the necessity to avoid these irritants.

That coughing gives rise to faintness and syncope is widely accepted. Many men will admit, on direct questioning, to a transient dizziness during a severe coughing bout, some even having to sit down for a while, though few lose consciousness. I feel like many others that this syndrome is commoner than is generally realized, and that some more acceptable nomenclature should be devised.

References.

ADAMS, D. K. (1936), "A Note on Laryngeal Vertigo with Record of a Case", *Brit M. J.*, 1: 685.

CHARCOT, J. M. (1876), Statement to the *Société de biologie*, November 19, 1876, *Gaz. méd. de Paris*, 5: 588.

NEGUS, V. E. (1929), "The Mechanism of the Larynx", The C. V. Mosby Co., St. Louis; 264.

STARLING, E. H. (1920), "Principles of Human Physiology", Third Edition, J. and A. Churchill, London; 619.

BAKER, C. (1949), "The Cough Syndrome, Faintness and Loss of Consciousness from Coughing: The So-Called Syndrome of Laryngeal Vertigo", *Guy's Hosp. Rep.*, 98: 132.

ROOK, A. F. (1946), "Coughing and Unconsciousness, the So-called Laryngeal Epilepsy", *Brain*, 69: 138.

ENGEL, G. L. (1948), "Fainting, Physiological and Psychological Considerations", Charles C. Thomas, Springfield, Illinois; 35.

PARKES, W. R. (1951), "Laryngeal Epilepsy", *Brit. M. J.*, 2: 672.

HOWARD, P., LEATHART, G. L., DORNHORST, A. C., and SHARPEY-SCHAFER, E. P. (1951), "The 'Mess Trick' and the 'Fainting Lark'", *Brit. M. J.*, 2: 382.

MCCANN, W. S., BRUCE, R. A., LOVEJOY, F. W., YU, P. N. G., PEARSON, R., EMERSON, E. B., ENGEL, G., and KELLY, J. J. (1949), "Tussive Syncope; Observations on the Disease Formerly Called Laryngeal Epilepsy, with Report of Two Cases", *Arch. Int. Med.*, 84: 845.

Reviews.

The Extra Pharmacopœia (Martindale): Incorporating Squire's Companion. Published by direction of the Council of the Pharmaceutical Society of Great Britain; Twenty-Third Edition; Volume I; 1952. London: The Pharmaceutical Press. 7½" × 5", pp. 1374. Price: 55s.

FOR nearly seventy years "Martindale" has held a unique position in providing reference for both physician and pharmacist to practically all current therapeutic substances —official, unofficial and proprietary. In addition, it has been noted for its comparative information relating to foreign pharmacopœias and for its inclusion of relevant abstracts from current world medical literature.

Now, after a lapse of eleven years, the twenty-third edition (Volume I) comes as a worthy successor to previous editions. It is in fact a repository for information—chemical, pharmaceutical, pharmacological and therapeutic —the quantity and quality of which are nothing short of amazing.

It is hard to realize that so many drugs and drug groups now in intensive everyday use, the antibiotics, the antihistamines, the muscle relaxants and the adrenal cortical hormones, to mention but a few, have made their appearance in the interval between the publication of the last two editions.

While the general set-up remains substantially the same as in previous editions, the increasing number of different drugs subserving identical therapeutic demands almost compels the adoption of a pharmacological rather than an alphabetical classification. In this respect the editors have made a compromise and describe the present arrangement as a "planned inconsistency" intended to achieve maximum user value. Illustrations of this arrangement selected at random are *"Acidum Undecylenicum* (and other antimycotics)", which include various salts of undecylenic acid, caprylic acid, propionic acid and chlorphenesin; "Adrenalina", which deals, in addition, with nor-adrenaline, isoprenaline, naphazoline ("Privine"), phenylephrine ("Neo-Synephrine") and pholedrine; "barbitone (and other barbiturates)"—a comprehensive monograph on barbiturates in general; and "mepyramine maleate and other antihistamine substances".

Following the main body of the work special sections are devoted to the antibiotics, antibacterial products, blood transfusion materials and data, and to ligatures and sutures. Each contains an astounding amount of information, and is such a useful "concentrate" that one would like to see other subjects such as the vitamins, the hormones, the local anæsthetics and the antihistamines made further subjects of such special sections.

The wealth of discreetly selected abstracts from medical and pharmaceutical literature has always been an outstanding feature of Martindale, and the present edition incorporates some 4000 such abstracts relating to every aspect of the uses, modes of administration, contraindications, toxicity and treatment of over-dosage of practically every substance used in medicine.

Apart from a comprehensive index, a very convenient feature, now much enlarged, is the therapeutic and pharmacological index—a page indexed arrangement of therapeutic agents under disease and pharmacological headings.

As a matter of history it is of interest to note that the copyrights of two outstanding and almost parallel works—Squire's "Companion to the British Pharmacopœia" and Martindale's "Extra Pharmacopœia"—have now been acquired by the Council of the Pharmaceutical Society of Great Britain, and the volume under review incorporates the best features of both works.

The Council merits and earns the grateful thanks and appreciation of both medical and pharmaceutical professions for its enterprise in continuing to publish the "E.P." and for the excellence of the work achieved.

Visceral Circulation (a CIBA Foundation Symposium). Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S., and Jessie S. Freeman, M.B., B.S., D.P.H.; 1952. London: J. and A. Churchill, Limited. 8" × 5¼", pp. 292, with 68 illustrations. Price: 30s.

THE CIBA Foundation is an international centre where researchers in medicine and chemistry can meet informally to exchange ideas and examine critically the latest hypotheses put forth. The Foundation has been in existence five years and four volumes have been published. In this particular case some 49 experts from eight countries met and discussed problems in visceral circulation. The 25 main contributions were followed by lively discussions which have been well reported. To read this book is to feel that one has been admitted to a symposium where experts of international renown have advanced original ideas and subjected these to the critical scrutiny of equally learned colleagues. Let it be remembered that the contents of each thesis and the discussions arising therefrom represent in the main very recent work which has not as yet been published. The reader is therefore favoured with a presentation of facts and opinions some considerable time before these have appeared in a technical journal. This accounts for the exceptional freshness of the book. It would be impossible to cover here the whole of the work embodied as each contribution might well be the subject of a special review; suffice it to say that the latest ideas on visceral circulation, including that of the skin, with special reference to arteriovenous anastomoses and sphincter mechanisms in the veins are here set out in sprightly manner. Liver, kidney and lung receive particular emphasis, but the problems of general circulation and the reflex and hormonal mechanisms involved are not forgotten. Further CIBA symposia and colloquia will be welcome.

Physiology of the Eye. By Arthur Linksz, M.D., F.A.C.S.; 1952. Volume II: Vision. New York: Grune and Stratton. 10" × 7", pp. 882, with 248 text figures. Price: $19.00.

IN presenting his second volume of "Physiology of the Eye: Vision", Arthur Linksz has issued a provocative book and a challenge to practising ophthalmologists to keep themselves abreast of thought in one of their basic subjects. The material is arranged in thirty-three sections, each of which represents a lecture of a refresher course. The more recent works of Granit, Polyak, Wright, Chavasse, Luneburg, Ogle and Ames are integrated with those of Young, Müller, Helmholtz, Cajal, Pavlov, and even Plato and Saint Augustine. The reader will disagree with many of the author's "presentations for didactic purposes", but will also be stimulated by the breadth of the different discussions.

There are four main sections to the book: (*a*) "An Analysis of Sensations", eight lectures; (*b*) "Pattern and Detail Vision", five lectures; (*c*) "The Perception of Spatial Relationships", twelve lectures; (*d*) "Vision and the Oculo-

Rotatory Reflexes", eight lectures. Discussions about colour vision occupy a large part of the first section. The trichromatic theory is shown to be inadequate because yellow and black are differentiated by retinal receptors and the differentiation is not the result of "higher" integration. Hering's theory is revived, but modified to suit subsequent physiological thought. The author postulates a dominator (grey) mechanism for the discrimination of brightness from white to black, and two pairs of mutually exclusive modulators (red-green, yellow-blue) for colour reception. Hartridge's or other polychromatic theories are not mentioned.

The author shows that visual acuity depends on our faculty to distinguish quantitative differences between light stimuli (light sense); and the "form sense" as a separate entity does not exist. The "sense of contrast" and "sense of position of objects" are also fictitious.

"The Perception of Spatial Relationships" is the most interesting section. The unconscious statistical analysis of visual stimuli replaces the theory of retinal projection and local sign. The Vieth-Müller horopter is given a place of honour, and an impressive series of horopters by Luneburg, Hildebrand and Hartridge amplify the geometry of visual space. A chapter on perspective brings an interlude on modern art. Experiments of Ames are described, but anisiekonia is considered to be a relatively uncommon cause of clinical symptoms. The theories of Gestalt psychology influence many conclusions.

The section on vision and the oculo-rotary reflexes describes the occipital and prefrontal centres for oculo-rotary movements and disposes of other postulated "centres" such as those for convergence and divergence. The ocular muscles are unique in that their feed back control (cybernetics) does not come from proprioceptors within the muscles but from visual control via the retinæ.

This is not a usual text-book; as such it would be very incomplete. It is not for junior post-graduate students, but it should be read by senior ophthalmology students, by practising ophthalmologists and by teachers of physiology.

The Physician's Guide to Chemotherapy. By Peter N. Swift, M.R.C.P. (London); 1952. London: H. K. Lewis and Company, Limited. 8½" × 6", pp. 188. Price: 15s.

THE first glance through this book suggests that it will be most useful, containing as it does a wealth of material compiled in an accessible form. On detailed scrutiny, however, it is disappointing to find that many statements are misleading and that in the attempt to summarize the application of drugs for therapy, wrong emphasis is sometimes given. It is to be expected that in a rapidly changing sphere like chemotherapy some of the material is out of date in the light of recent information obtainable in the journals, but it seems unnecessary still to advocate treatment that is regarded as old fashioned. For example, a student might accept from this book that sulphonamides are as good as penicillin in the treatment of pneumococcal pneumonia, a view that should not be encouraged. The material is unreliable for the inexperienced and confusing for one who wants clarification of controversial issues in antibiotic usage.

Those sections which radiate from the practical experiences of the author, such as that dealing with the use of polymyxin and streptomycin, are likely to be of greater value than many other sections. It will be noted that reasonable emphasis is given to the true value of sulphadimidine compared with sulphadiazine, and this should be appreciated, because we read in the American literature chiefly of sulphadiazine when a sulphonamide is used.

The broad spectrum antibiotics are discussed in similar detail to that often served to us on desk brochures and blotters without the critical information needed at the present time. There is little doubt, however, that penicillin and the broad spectrum antibiotics are replacing the sulphonamides in the treatment of most acute infections.

Residential Speech Therapy. Edited by C. Worster-Drought, M.A., M.D., F.R.C.P., F.C.S.T.; 1952. London: William Heinemann (Medical Books), Limited. 7¼" × 5¼", pp. 160, with 35 illustrations. Price: 15s.

C. WORCESTER-DROUGHT's book is an interesting record of the first two years' work in speech rehabilitation carried out at Moor House School, Hurst Green, Oxted, Surrey. Moor House is unique, since it is the only residential speech centre in the United Kingdom. This book gives a detailed account of the administrative structure and the function of its staff of highly qualified medical specialists and medical auxiliaries.

While Moor House has been established primarily to provide intensive speech therapy, provision is also made for educational facilities; in fact no aspect of the child's individual needs, psychological or physical, has been overlooked. The school had not been long established before it was realized that there were excellent diagnostic facilities available. As a result of the founding of the diagnostic unit some valuable data have been obtained, particularly in relation to the differentiation of deafness and mental defect, and the problem of congenital auditory imperception. The various types of speech disorders dealt with include both the receptive and executive types of aphasia, developmental defects having their origin in specialized forms of agenesis of the nervous system, the dyslalias, and cleft palate speech. There are some interesting descriptions of typical cases, treatment techniques, and a note on a sound alphabet with pictures, which has been especially designed for aphasic children.

Nothing quite like "Residential Speech Therapy" has appeared before, and it makes stimulating and instructive reading for everyone working in the subject.

Books Received.

[*The mention of a book in this column does not imply that no review will appear in a subsequent issue.*]

"To Benghazi", by Gavin Long; 1952. Canberra: Australian War Memorial. Sydney: Angus and Robertson, Limited. Obtainable at all booksellers. 9¼" × 6¼", pp. 350, with about 84 illustrations and maps. Price: 25s.

This is the first volume of Series I (Army) of the history of "Australia in the War of 1939-1945".

"Handbook of Orthopædic Surgery", by Alfred Rives Shands, junior, B.A., M.D., in collaboration with Richard Beverly Raney, B.A., M.D.; Fourth Edition; 1952. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9" × 6", pp. 644, with 192 illustrations. Price: £4 4s.

The third edition was published in 1948.

"Elements of Economics: Introduction to Economics from a New Point of View", by M. C. De Garis; 1952. Geelong: M. C. De Garis. 8½" × 5½", pp. 128. Price: 9s. 6d.

This book is "an inquiry into the nature of money".

"The Surgery of Pancreatic Neoplasms", by Rodney Smith, M.S., F.R.C.S.; 1953. Edinburgh and London: E. S. Livingstone, Limited. 10" × 7", pp. 164, with 111 illustrations. Price: 35s.

This is the Jacksonian Prize Essay of the Royal College of Surgeons of England for 1951.

"Anatomy of the Autonomic Nervous System", by G. A. G. Mitchell, O.B.E., T.D., M.B., Ch.M., D.Sc., with a foreword by James Learmonth, K.C.V.O., C.B.E., Ch.M., LL.D., F.R.C.S. (Edinburgh); 1953. Edinburgh and London: E. and S. Livingstone, Limited. 10" × 7", pp. 372, with 131 illustrations, some in colour. Price: 55s.

This book represents an expanded form of papers written by the author over a period of nearly twenty years.

"Social Psychiatry: A Study of Therapeutic Communities", by Maxwell Jones, M.D., M.R.C.P. (Edinburgh), D.P.M., and A. Baker, M.B., B.S., D.P.M., Thomas Freeman, M.D., D.P.M., Julius Merry, M.B., B.S., D.P.M., B. A. Pomryn, M.B., B.S., D.P.M., Joseph Sandler, M.A., Ph.D., A.I.S., and Joy Tuxford, with a foreword by Aubrey Lewis; 1952. London: Tavistock Publications, Limited, in collaboration with Routledge and Kegan Paul, Limited. Sydney: Walter Standish and Sons. 9" × 6", pp. 206, with two text figures. Price: 18s.

This is "a report on the work of a unit which was organized to study and develop community methods of treatment".

"Recent Advances in Obstetrics and Gynæcology", by Aleck W. Bourne, M.A., M.B., B.Ch. (Cambridge), F.R.C.S. (England), F.R.C.O.G., and Leslie H Williams, M.D., M.S. (London), F.R.C.S. (England), F.R.C.O.G.; Eighth Edition; 1953. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 348, with 92 illustrations. Price: 27s. 6d.

The seventh edition was published in 1948.

The Medical Journal of Australia

SATURDAY, MARCH 28, 1953.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

A PLEA FOR THE DOCTOR'S WIFE.

According to the story in the book of Genesis woman was created as a help meet for man, because it was not good that he should be alone. The pages of history will tell us how woman has fared through the ages, whether she has been a help and a companion to man, or whether she has been pushed into the background and made to serve her lord and master. To make any attempt even to outline the story of woman in history in this place is impossible; nor is it necessary. It will suffice to remind ourselves that although women were usually looked on in the olden days as inferior beings, there have from time to time appeared on the scene gifted woman of character, strong will and attraction, unscrupulous perhaps but purposeful, who have made weaklings of men and branded them as foolish for all time. Delilah and Samson have had their counterparts in many ages, in many climes and in many stations of life. We also need to remind ourselves that what has been known as the emancipation of woman has taken place during the last half-century, and that in most countries woman occupies a distinguished and honourable place in society, in many respects the equal of that taken by man. At the same time we remember the attitude towards women evident in pre-war Germany, the wife being regarded, and willingly taking her place, as a perpetual attendant on her husband, waiting on him hand and foot so that he took it all for granted. Whether this kind of thing is still found in Germany we do not know, but we do know that there are in our midst today men who believe that their wives should, in the words of Katharina in "The Taming of the Shrew", place their hands below their husband's foot.

This subject cannot be discussed rationally without some reference to marriage and its basis. If a man regards his wife as his mate, he will treat her differently from the way in which he would treat one whose first duty in his eyes was to minister to his bodily needs. Men and women marry for all kinds of reasons. In a community such as our own some men may marry for the sake of companionship, and women to gain the security of a home; generally speaking they are attracted to one another and are commonly supposed to be in love. This love means or should mean something more than physical or sexual attraction. Sexual attraction there must be, but it is only one of the factors that bind lovers together in marriage. If it stands alone, the marriage will soon became a failure. B. A. Bauer in his well-known book on woman (translated from the German) writes that real love is not one emotion but a complex of emotions, which find their expression in a feeling of oneness. (This expression "feeling of oneness" is a translation of the German *Zusammengehörigkeitsgefühl*, expressed elsewhere as "the feeling of belonging to each other".) Young people learn to know one another most quickly when they live together; and love, like everything else that must increase, lives on the food that it receives. Bauer writes that the feeling of oneness depends on common interests, but that it cannot and must not on any account be based on material interests. Referring to "oneness", Bauer continues: "A marriage based on love of this sort offers some guarantee that the parties will need no external prohibitions to keep them faithful to each other; the prohibitions will spring from this inner feeling of oneness. The conception of 'oneness' presupposes an intimate acquaintance with one another's character." These ideas are compatible with the "emancipation of woman"—an emancipated wife can no longer be nothing but a household drudge. According to Bauer the fundamental basis remains that the woman is the soul of the home. The social conditions, he thinks, determine whether her help is mainly practical or mainly spiritual; but in both cases a wife's first duty is to be a woman. "She should be a man's truest and most devoted friend, sharing good fortune and bad alike, sympathising with his troubles, and standing loyally by his side in the battle of life. This friendship will be possible only if the wife takes the trouble to share his interests. Selfishness must give place to altruism; indeed she must frequently thrust her own ego right into the background. But she can only do this if the husband, on his side, treats her as a real friend."

The lives of medical men and their wives at the present time, especially in general practice, are not easy. The husband as a family doctor is at the beck and call of his patients; he must be ready to go to their aid whenever they call him; in an emergency he must drop everything else that he is doing. It might in fact be said that he belongs more to his patients than to his wife and family. Some medical men do a 24-hour-a-day job because they seldom dismiss from their minds their patients' illnesses, disabilities and distresses. It is small wonder that men of this kind frequently break down in health or seem to grow old before their time. It is the devotion and self-sacrifice of wives more often than not that help these men to keep going. The wife often can obtain little or no help in the running of the house; she has to care for the children and maybe see to their schooling; she has to answer the telephone and doorbell; she has to keep her husband's memory alert when he is likely to forget—and

with all this she has to be tactful and "nice" to patients, some of whom can be the most irritating of God's creatures —all "for the sake of the practice". The house in which the practice is conducted may be old, large and generally unsuited to present-day life, but it has been handed down from one doctor to another over a succession of many years and has to be occupied willy nilly. In these circumstances the wife should be supplied with every labour-saving device that can be obtained. Her kitchen should be beyond reproach and designed in a modern labour-saving fashion. The kitchen is as important in a doctor's house as the consulting room. It is true that the patients do not see it (the general impression created in a doctor's home must always be considered!), but it is here that the doctor's wife may save time and become able to do her share of running the practice. Let us make no mistake —the man whose name appears on the brass plate is not the only person who keeps the practice going. There is no reason why a wife should well nigh break her back bending down to an old-fashioned stove sitting in sulky ugliness on the floor. She should not have white wood to scrub, even though Dr. X's wife had it that way in 1906. If the floor has to be polished she should have an electric polisher to do the job. She should have a hot water service—it would be of use in the other important room of the house, the consulting room. It seems incredible that a young wife with children to care for and no domestic help should have to heat a copper with a wood fire to obtain hot water for washing up and bathing the children. But it is so, and where it need not be. The practice, we shall be told, has to be run. That is obvious. If a new instrument has come into use and will make for professional efficiency, it is bought. If a secretary asks for a new heater in winter or an electric fan in summer, she gets it. The motor-car must shine like an early spring morning and purr when set going like a contented cat; if it has run more than a certain number of miles (a good excuse) and Dr. A., who lives opposite, has a new model, it must be traded in for a new machine with more superb curves than those of Dr. A's car. These expedients may all be justified if they can be adopted with fairness to the silent partner in the practice—the wife. If there is in the home a true *Zusammengehörigkeitsgefühl*, mutual consideration will be shown; if the doctor's wife, or for that matter any other man's wife, is compelled to work herself to death in conditions which may be remedied, we shall be justified in concluding that the "feeling of oneness" is lacking, that husband and wife are not true friends.

Current Comment.

ECTOPIC PREGNANCY.

THAT the occurrence of ectopic pregnancy is due to some pathological change in the lining of the Fallopian tube is commonly recognized. An interesting paper was presented to the Section on Obstetrics and Gynecology at the annual session of the American Medical Association in June, 1952, by L. Krohn, M. S. Triver and M. H. Gotlib.[1] These authors produce evidence to show that the occurrence of ectopic pregnancy has become more frequent as the result of penicillin therapy. They have had experience of 55 cases of ectopic pregnancy; 18 were encountered in their private practice, and 37 patients were operated on by others in The Cedars of Lebanon Hospital. They refer to figures quoted by Schumann in 1921—one ectopic pregnancy in 303 pregnancies. They also state that figures at the New York Lying-in Hospital, covering the period 1931 to 1945, disclosed one ectopic gestation for every 268 pregnancies. During the years 1949, 1950 and 1951, there were 6859 live births at The Cedars of Lebanon Hospital, an incidence of one in every 129 births. During the same period, the incidence in their own private practice was one in 55 live births. In 24 of the 55 cases of ectopic pregnancy mentioned by them there was a history of penicillin therapy administered prior to the development of the ectopic pregnancy. The suggestion is that the improvement following penicillin therapy may result in the reopening of a previously non-patent tube, while considerable residual damage remains. They quote a suggestion by Eastman that inadequate antibiotic therapy, or therapy administered after the development of irreversible structural changes in the endosalpinx may increase the occurrence of ectopic gestation through the prevention of tubal occlusion. In reference to the statement that any factor that will delay or prevent the passage of a fertilized egg into the uterine cavity may result in tubal pregnancy, they state that the commonest of these factors, inflammatory disease, produces changes in the tubal epithelium with impairment of ciliary activity, or changes in the muscularis or serosal surface of the tube, interfering with normal peristalsis.

This observation will be borne in mind by Australian gynæcologists and obstetricians. The authors make no suggestion as to what should be done in the matter, but they do make one or two statements in regard to diagnosis, to which grave exception must be taken. They state that when one is confronted with the problem of making a diagnosis of ectopic pregnancy, particularly before rupture, it is common practice to carry out one of the accepted biological tests for pregnancy. With this there will be common agreement. They go on to state that it is also frequently desirable to make a bimanual pelvic examination with the patient under anæsthesia, and a diagnostic curetting "to determine the presence or absence of decidual tissue without chorionic villi". This is against all the accepted teaching in this country. To begin with, a diagnostic curettage under anæsthesia would be likely to cause rupture of an ectopic pregnancy, and secondly, if no ectopic pregnancy was present, an intrauterine gestation would be terminated, something which no gynæcologist would be willing to do if he could possibly avoid it.

[1] *J.A.M.A.*, November 29, 1951.

DISTURBANCE OF NORMAL BACTERIAL ECOLOGY BY ANTIBIOTICS.

WITHIN a very short time after birth the human infant has acquired a microbic flora, in such parts as the mouth, bronchi, intestinal tract and skin, practically identical with that in the adult in the same environment. The complex flora consists of Gram-positive and Gram-negative bacteria and smaller numbers of yeasts and fungi. It is not known why specific areas of the body have different mixtures of microorganisms, but this is probably achieved by competition in a manner analogous to the establishment of the normal flora of soils. Saprophytic organisms and some pathogenic organisms are being constantly introduced into the body, but for the most part they do not survive in competition with the normal inhabitants. Evidence is accumulating that the complex balance which exists in the microbial flora normally existing in the body can be upset by the prolonged administration of the newer antibiotics. This may result in the development of secondary vitamin deficiencies or the appearance of new disease syndromes. David T. Smith[1] has considered various types of conditions which may result from the prolonged adminis-

[1] *Ann. Int. Med.*, December, 1952.

tration of different antibiotics. That changes in environmental conditions can bring about changes in the normal proportions of different bacteria is seen in summer diarrhœa. During periods of hot weather some children become dehydrated and there is a reduction in the secretion of digestive juices; bacilli of the *coli* type multiply in great numbers in the undigested food and produce organic acids which irritate the tract, causing vomiting and diarrhœa with an increase in the dehydration and so a vicious circle. Different antibiotics act predominantly on different types of microorganisms. Thus penicillin destroys Gram-positive bacteria, but except in high concentrations has little effect on Gram-negative organisms. In the treatment of chronic bronchitis, chronic bronchiectasis and chronic pulmonary abscess by penicillin therapy, the initial result is often dramatic with considerable reduction of sputum and of fever. After a few weeks of continuous therapy, the sputum increases in amount, changes colour, and is often more profuse than before treatment was started. The original predominantly Gram-positive flora has been replaced by Gram-negative bacilli which under the conditions existing are pathogenic. Local treatment of mouth lesions by penicillin lozenges may give a sufficiently high concentration of penicillin to destroy both Gram-positive and Gram-negative bacteria, thus allowing yeasts and fungi to grow, with the appearance of "hairy tongue", "black tongue", and various aphthous conditions. Practically all bacteria are eliminated by the simultaneous administration of penicillin and streptomycin, and yeasts and fungi increase considerably. This has been seen in combined treatment of chronic bronchiectasis. Yeasts and fungi, normally kept in check by the mixed bacterial flora, are not inhibited by penicillin, streptomycin, aureomycin, chloramphenicol or terramycin. Before the introduction of antibiotics in therapy, *Candida albicans* was known to produce thrush in infants and debilitated adults. Following treatment with the broad coverage antibiotics, or with a combination of penicillin and streptomycin, serious infections with this organism of the mouth and pharynx, vagina and lungs have become common, and invasions of the internal organs have been seen.

Many of the bacteria of the intestinal tract produce vitamins, particularly vitamin *K* and vitamins of the *B* group. When the appetite and digestion are disturbed, as they often are by some of the antibiotics, this bacterial source of vitamins may be of great importance. Prolonged therapy with antibiotics may induce frank vitamin deficiencies. For example, prolonged treatment of chronic pneumonitis of unknown origin by aureomycin was followed by the development of severe pulmonary moniliasis and a vitamin deficiency characteristic of pellagra. The newer antibiotics, with broad coverage, should not be administered for more than one week at a time, unless the ætiological agent causing the infection has been identified and the indications for prolonged therapy are obvious, and then only with watchful care. A complete vitamin supplement, with special emphasis on the *B* complex, should be given to all patients receiving prolonged therapy with the newer antibiotics.

THE PREVENTION OF RHEUMATIC FEVER.

A good deal has been written in the last few years on the prevention of rheumatic fever, particularly by chemotherapeutic measures. The generally accepted current views on the matter have been summed up in a statement recently issued by the American Heart Association.[1] The statement was prepared by the Association's Council on Rheumatic Fever and Congenital Heart Disease, under the chairmanship of Burtis B. Breese, and copies are obtainable from the medical director of the Association, 44 East 23rd Street, New York 10, New York. The statement points out that the prevention of rheumatic fever and rheumatic heart disease depends upon the control of streptococcal illnesses, and this may be successfully accomplished, firstly, by early and adequate treatment of streptococcal infections in all individuals, and secondly, by prevention of streptococcal infections in rheumatic subjects. Dealing first with the diagnosis and treatment of streptococcal infections, the statement explains that in the general population, at least 3% of untreated streptococcal infections are followed by rheumatic fever. However, adequate and early penicillin treatment will prevent most attacks of rheumatic fever and eliminate streptococci from the throat. Streptococcal infections can mostly be recognized clinically, but laboratory tests may help. Epidemiological clues are seasonal incidence and the presence of similar infections near by. Symptoms are sore throat of sudden onset in the tonsillar region, headache, fever, abdominal pain, nausea and vomiting (these three especially in children). Symptoms characteristically absent are simple coryza, cough and hoarseness. Typical signs are red throat, exudate, swollen and tender tonsillar glands, scarlatiniform rash (not common) and aural or nasal discharge from middle ear or sinus infection. Confirmatory laboratory findings are leucocytosis and growth of hæmolytic streptococci. Therapeutic response to penicillin within twenty-four hours is characteristic, and its absence is evidence against the diagnosis. Treatment should be started immediately a streptococcal infection is suspected and continued long enough to eradicate the streptococci. Penicillin is the drug of choice and may be given intramuscularly or orally, though the effectiveness of oral therapy has not been finally determined. The following schedules are recommended. One intramuscular injection of procaine penicillin is given every third day for three doses (each of 300,000 units with aluminium monostearate in oil for children and 600,000 units in aluminium monostearate for adults). Alternatively 200,000 to 300,000 units of penicillin may be given orally one-half to one hour before meals and at bedtime for the first five days and 200,000 to 250,000 units one-half to one hour before meals for the second five days, the dosage for children being less than that for adults; the full ten days' treatment is essential despite earlier disappearance of symptoms. Aureomycin is less effective than penicillin, but useful for patients sensitive to penicillin; the dosage is a total of 10 milligrammes per pound of body weight in four divided doses daily for two days and half that dosage for a further eight days. Penicillin troches or lozenges, penicillin followed by sulphonamides and sulphonamides by themselves are not recommended.

The statement then turns to prevention of streptococcal infections. It lays down that treatment should be given to all persons under the age of eighteen years who have had rheumatic fever or chorea and all over this age who have had an attack within five years. Treatment should start at the end of the second week of the attack of rheumatic fever or at any time thereafter when the patient is first seen; before prophylaxis starts, β hæmolytic streptococci should be eradicated by the treatment already described. Prophylactic treatment should continue at least to the age of eighteen years, and with those over this age for at least five years from the last attack. Prophylactic drugs are sulphadiazine and penicillin. Sulphadiazine is convenient and effective and is given in a dosage of from 0·5 to 1·0 gramme each morning throughout the year (the smaller dose is for children weighing less than 60 pounds). Toxic reactions (skin eruptions and leucopenia) are infrequent and usually minor, but must be watched for and may make cessation of therapy necessary. Experience with oral penicillin therapy is less than with sulphonamides, but it appears to be a safe and effective prophylactic, especially useful for patients who do not tolerate sulphadiazine. The following schedule is suggested: 200,000 to 250,000 units twice daily one-half to one hour before a meal or at bedtime (it is absorbed best when the stomach is empty). Toxic reactions are urticaria, effects like those of serum sickness and angioneurotic œdema. Discontinuance of penicillin administration is not necessarily required if toxic reactions appear, but it is safer if the reaction has been severe and particularly if angioneurotic œdema has occurred.

[1] *Lancet*, February 7, 1953.

Abstracts from Medical Literature.

PATHOLOGY.

Anoxia and Endocardial Fibroelastosis in Infancy.

FRANK R. JOHNSON (*Arch. Path.*, September, 1952) has made a study of 23 hearts with endocardial fibroelastosis and of the literature in an effort to determine the cause of this lesion. He states that it has been found that endocardial fibroelastosis always develops in hearts having associated malformations which could produce endocardial anoxia. These malformations usually involve an anomaly of the coronary arteries in consequence of which unoxygenated blood is delivered to the endocardium, premature closure of the *foramen ovale*, which prevents oxygenated blood from entering the left atrium and ventricle, or vascular atresias in which stagnation anoxia develops. On the basis of this evidence it is suggested that an important factor in the development of so-called congenital endocardial fibroelastosis is endocardial anoxia, just as it is in endocardial scarring in the adult; it is best exemplified in myocardial infarction due to obstruction of the coronary arteries. There may, of course, be other factors. No evidence, however, was obtained that the lesion is a true congenital anomaly or is due to intrauterine infection.

Biopsy of the Liver in Infectious Mononucleosis.

R. C. WADSWORTH AND P. G. KEIL (*Am. J. Path.*, November-December, 1952) state that liver specimens were obtained by forceps, at peritoneoscopy, from 10 patients with infectious mononucleosis. Biopsies were done from two to two hundred and twenty-five days after the onset of symptoms. The gross and histological findings are similar to those described in the livers of patients with non-fatal epidemic hepatitis. Serial liver function studies were performed on most of these patients. An attempt has been made to correlate the histological findings with the clinical course and the laboratory data. The degree of anatomical change does not parallel the degree of abnormality of the liver function tests.

Morphology and Pathogenesis of Biliary Cirrhosis.

ELI MOSCHCOWITZ (*Arch. Path.*, September, 1952) studied 45 cases of biliary cirrhosis. He states that these can be grouped under two main headings: (i) biliary cirrhosis consequent to obstruction; (ii) biliary cirrhosis following primary chronic cholangiolitis of unknown origin. The extrahepatic obstructions followed carcinoma of the head of the pancreas and the biliary ducts, cholelithiasis, congenital atresia of the biliary passages, acquired strictures of the common bile duct and obstruction due to chronic cholangitis. The evolution of the lesions, from the earliest to the ultimate phases, in obstructions of extrahepatic origin are described. This is revealed in an inflammatory granulomatous process, progressive both in maturity and in extent, which originates around the cholangioles. Thence it spreads into the contiguous areas of the portal spaces by a process of angiogenesis inherent in all granulation tissue. Capillarization occurs early. Abundant formation of new bile ducts occurs. At first the granulomatous process is confined to the portal spaces. In the later phases, prolongations of the interlobular septa fuse, forming pseudolobuli. Simultaneously, communications also arise between the portal spaces and the hepatic and central veins, giving rise to an internal Eck fistula. Subcapsular granulomatous lesions are now visible, which also communicate with the neighbouring portal spaces and hepatic veins. In the ultimate phase, the normal architecture is completely distorted, and the smaller portal spaces and interlobular bile ducts are destroyed. The pathogenesis is viewed as chronic cholangiolitis. Hypertension of the portal circulation sometimes develops, as proved by congestive splenomegaly. There is remarkable parallelism between the duration of the jaundice and the maturity of the lesions. In the second variety—namely, primary chronic intrahepatic cholangiolitic biliary cirrhosis—the morphological picture is identical with the ultimate phase of biliary cirrhosis due to extrahepatic obstruction. Occasionally, narrowing and complete obliteration of some of the smaller bile ducts occur, indicating widespread and intrahepatic obstruction. Congestive splenomegaly was present in the majority of cases. Pure obstructions, without the admixture of infection, may cause biliary cirrhosis. Experimental biliary cirrhosis simulates morphologically the cirrhosis which occurs in man. In the pathogenesis of obstructive biliary cirrhosis, increased tension within the biliary passages deserves consideration. Primary hæmatogenous cholangitis is exceedingly rare. *Cholangitis lenta* is a purely clinical designation and is by no means synonymous with biliary cirrhosis. Hanot's cirrhosis is a syndrome and not a morbid entity. On morphological grounds only, the end-stage of biliary cirrhosis differs in no wise from that of Laennec's cirrhosis, except in the presence of biliary pigment in the parenchyma and in the more abundant formation of new bile ducts.

The Pre-Malignant Phase of Endometrial Carcinoma.

H. SPEERT (*Cancer*, September, 1952) has studied 16 cases of endometrial carcinoma in which curettage had been performed at various times before the cancer diagnosis was made. He states that in three cases, cancer was present in the original curettings but was misdiagnosed. In two cases, curettage nineteen and twenty-two years before the discovery of cancer revealed normal proliferative endometrium. Thirteen specimens of endometrium, which were obtained from the 11 remaining patients between one and eighteen and a half years before the recognition of carcinoma, all showed varying degrees of atypical or adenomatous hyperplasia. This lesion is characterized by various combinations of the following: epithelial budding, tuft formations within the gland lumina, outpouchings of the gland walls, crowding of the glands, stratification of the epithelium and pallor of the stained cells. In the present state of our knowledge, unexplained adenomatous hyperplasia should probably be considered a precancerous lesion in the post-menopausal uterus.

Pathology of Meningiomata.

J. LAPRESLE, M. G. NETSKY AND H. M. ZIMMERMAN (*Am. J. Path.*, September-October, 1952) suggest a new approach to the interpretation of meningiomata based on a clinico-pathological study of 121 cases. They state that the present concept is that meningocytic or fibroblastic cells, alone or in combination, are the basic cellular constituents of these neoplasms. The diagnosis is established by the finding of such cells in the characteristic whorl pattern. There are thus meningocytic meningiomata, fibroblastic meningiomata and mixed types. Secondary components (lipomatous, hæmangiomatous, psammomatous) may or may not be associated with these cells. The secondary components are not essential for the diagnosis, but for descriptive purposes may be included as in "fibroblastic meningioma with mild psammomatous component". The flexibility of this scheme permits adaptation of the diagnosis to the extreme polymorphism of meningiomata. The tumour is strictly defined in morphological terms and can be described clearly and completely. Thirty photographs illustrate the authors' suggestions.

Paget's Disease of the Nipple and Bowen's "Precancerous Dermatosis".

K. INGLIS (*J. Path. & Bact.*, July, 1952) states the views of various observers on the nature of Paget's disease of the nipple and of Bowen's precancerous dermatosis and on the relation of one to the other. He describes two cases of Paget's disease of the nipple and a case considered to be an example of Bowen's precancerous dermatosis with malignant transformation. It is thought that the findings in these three cases support the view that Bowen's precancerous dermatosis and Paget's disease of the nipple are fundamentally different, in that Bowen's disease is due to changes in the epidermal cells *in situ* and Paget's disease to intraepidermal spread of cancer of duct origin.

Cholecystitis Glandularis.

E. S. J. KING (*Australian & New Zealand J. Surg.*, November, 1952) states that epithelium-lined spaces are found in the wall of the gall-bladder and often in the subperitoneal coat. These are of three distinct types, which have different origins: (*a*) sinuses communicating with the lumen of the gall-bladder; (*b*) ducts communicating with intrahepatic ducts but not with the gall-bladder; (*c*) subperitoneal glands of mesothelial origin. The sinuses (Rokitansky-Aschoff sinuses or *cholecystitis glandularis*) have a wide field of macroscopic form, ranging from those in which the organ is relatively normal and there are only a few crypts to various localized or diffuse thickenings of the wall. They are important because of various complications, such as cyst formation and development of intramural calculi. Rupture of subperitoneal cysts may give rise to choleperitoneum. The ducts, commonly seen on the hepatic aspect of the organ, may occur in the subperitoneal zone. They never communicate with the

lumen of the gall-bladder, and they have a characteristic histological structure. The mesothelial glands also have a characteristically different histological structure and are of importance mainly in so far as they have to be distinguished from the others previously described.

MORPHOLOGY.

Blood Vessels and Ducts of Human Liver.

H. ELIAS AND D. PETTY (*Am. J. Anat.*, January, 1952) present an illustrated study dealing with the macroscopic aspect of the vascular and ductal systems of the human liver, and in addition attempt to establish a link between the gross and microscopic anatomy of the blood vessels. The common portal vein divides, upon entering the liver, into a left and a right trunk, each supplying its own distinct territory. The left territory, which in the fœtus is supplied by the umbilical vein, is originally larger than the right omphalo-mesenteric territory. The left territory is reduced in relative size after birth, as the direction of blood flow in the left portal trunk is inverted. Each ramus that arises from one of the trunks of the portal vein supplies its own sharply delimited territory. The hepatic veins interdigitate with the portal veins in such a manner that the entire organ becomes unified. From the right trunk, the *rami centralis, lateralis* and *inferior dexter*, and *ramuli caudatus dexter* and *processi caudati* arise; from the left trunk, the *rami superior, intermedius* and *inferior lobi sinistri*, the *rami quadrati*, the *ramuli caudatus sinister, venosus, omentalis* and *paracysticus* arise. Minor variations occur. The *venæ hepaticæ sinistra, media* and *dextra* and some minor ones enter into the *vena cava*. The branches of the hepatic artery and the roots of the hepatic duct accompany the portal veins only in the peripheral parts of the organ. In the hilar region no such coordination exists. Two practical applications of the findings to surgery are suggested. For example, pre-operative cholangiography gives the surgeon information concerning the size and exact location of portal territories. He will be able to locate boundaries of these territories and will know that incisions along these boundaries will not meet major blood vessels and major ducts.

Origin of Extrophy and Epispadias.

B. M. PATTEN AND A. BARRY (*Am. J. Anat.*, January, 1952) state that the manner of origin of extrophy of the bladder, and more particularly the epispadias commonly associated with it, have long remained a subject of conjecture and controversy. This is due primarily to the lack of availability of stages in their genesis. The occurrence of this combination of abnormalities is about one in 40,000 to 50,000, and no one, so far as could be ascertained from the literature, has ever seen epispadias or extrophy in young embryos. Instances have been reported of extrophy without epispadias or epispadias without extrophy, but either of these conditions existing alone is exceedingly rare. The authors describe the characteristic conditions and variations, including that in which the phallus is completely divided medially. They review from its beginning the developmental history of the cloacal region and conclude that the clue to the embryological mechanisms involved in the genesis of extrophy of the bladder lies in the correct interpretation of the coexisting epispadias. Hypothetical stages in disturbed development are postulated which seem to explain the manner in which these associated anomalies may arise. The starting point is with embryos young enough to show the genital tubercle primordia still in their primary paired condition. The initial departure from normal is believed to be the formation of these primordia too far caudally with reference to the proctodæum; so they are located at the level at which the uro-rectal fold will present externally. The *corpora cavernosa* would then develop just caudal to the uro-genital outlet, and the urethral groove would form in their dorsal angle instead of in its usual location in their ventral angle. This would establish the relations characteristic of epispadias. The same abnormal position of the genital tubercle would entail, also, an absence of the ingrowth of mesenchyme which normally converges toward the mid-ventral line just cephalic to the uro-genital orifice. Thus when the cloacal membrane breaks through there is no mesodermal bar to the cephalic extension of this rupture. The likelihood of its extending all the way to the umbilicus, as is characteristic of extrophy, is enhanced by the exceedingly rapid elongation occurring at this time in the region between the uro-genital orifice and the umbilicus. The paper is illustrated.

Determining Age of Skulls.

J. V. BASMAJIAN (*Anat. Rec.*, April, 1952) states that it has been proved that arachnoid granulations of Pacchioni are absent during the first decade of life and increase in number with advancing age. Also it has been accepted that there is a corresponding increase in size of the depression or pits on the inner aspect of the calvarium for the granulations as they increase in size. No exact measurements apparently have ever been recorded, so the author examined and measured these depressions in 148 subjects of different ages from sixteen years to over ninety years. He found that there were wide variations in the size of these depressions (in three dimensions) from individual to individual in any age group, but they generally became progressively larger with advancing age. He states, however, that the size of these depressions cannot be used as a criterion of age, as, for example, in the medico-legal sense. Apparently no good criterion of the age of skulls has yet been found.

Myelin Sheath during Wallerian Degeneration.

C. R. NOBACK AND W. MONTAGNA (*J. Comp. Neurol.*, October, 1952) describe the reaction to several histochemical techniques of the myelin sheath fragmentation products during the first forty-two days of Wallerian degeneration. The myelin sheath degeneration products of the first ten days following transection have essentially the same histochemical properties as the normal myelin sheath. This suggests that this is primarily the period of the physical fragmentation and not of the chemical alteration of the myelin sheath. From ten to forty days after transection, the myelin sheath products of Wallerian degeneration do not all show the same histochemical properties, indicating a period during which chemical alterations of the lipids accompany physical fragmentation of the myelin sheath.

Reinnervation of Paretic Muscle.

A. VAN HARREVELD (*J. Comp. Neurol.*, October, 1952) found abundant collateral branching of nerve fibres in terminal branches of the motor nerve to the sartorius muscle, which had been partially denervated some time before. He states that the outgrowing collaterals grow into empty neurilemmal tubes, which guide the fibres to deneurotized end-plates, where they form terminal structures. The formation of collaterals may start as early as four or five days after the partial denervation of the muscle, and continues probably through the first month. The collateral formation is not restricted to the terminal branches. Evidence for this process was also found in osmic acid stained preparations of the large intramuscular branches of the motor nerve.

Histological Structure of Cerebral Cortex.

W. E. LE GROS CLARK (*Brain*, 1952, 75: 96) comments on the various attempts made to correlate structure and function of the cerebral cortex, and observes that, considering the complexities of cortical anatomy and physiology, it may be doubted whether we ever shall know the whole story. However, he states that in our attempt to know even a part of it, Bailey and Bonin have made a notable contribution by their critical and careful studies of cortical architectonics. Above all, their work has emphasized—and it will be generally agreed that the emphasis is timely—that Brodmann's charts (and also their own, presumably) are to be regarded as no more than schemata. Further, while the main areas indicated in them may be accepted as broadly correct in extent and boundaries—with a due recognition of their individual variability—the validity of some of the minor areas (to say the very least) is not beyond doubt. Finally, neurologists should continue to regard with the greatest suspicion the incredibly complicated "crazy-pavement" maps of cortical areas which have from time to time been elaborated by the Vogt school since Campbell's and Brodmann's original studies were first published.

Insertion of Pectoralis Major Muscle.

G. T. ASHLEY (*Anat. Rec.*, July, 1952) comments on the lack of unanimity in the teaching concerning the arrangement of the muscular and tendinous fibres which go to make up the *pectoralis major* muscle. He states that 60 adults and eight fœtal subjects have been dissected, and the precise arrangement of the components of this muscle has been determined. He submits a number of figures to record his findings and comments on how his description differs from those in the standard textbooks and atlases.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

LVIII.

INTUSSUSCEPTION.

INTUSSUSCEPTION consists in the telescoping of one portion of the intestinal tract into another. Of the four principal varieties (which are ileo-caecal, ileo-colic, colic and enteric), the ileo-caecal and ileo-colic are about equal in order of frequency. The colic variety, although occasionally met with in infants, occurs more commonly in older children. Double intussusceptions are not infrequent, especially as a complication of the ileo-colic variety. Multiple intussusceptions—in which two separate portions of the bowel are involved at the same time—are rare; and a retrograde intussusception, occurring at the same time in a portion of the bowel distal to the original intussusception, is rarer still.

Causation.

A Meckel's diverticulum is the starting point of an intussusception in a small percentage of cases and then generally in children over twelve months of age.

Polypi in the jejunum or ileum also form the starting point in a few cases; intussusceptions due to this cause are more often seen in children of three or four years of age than in young infants.

The cause of the majority of cases of acute intussusception seen in infants is obscure. No doubt the anatomical condition of the bowel has a good deal to do with the causation of intussusception. In most intussusceptions there is an abnormally mobile caecum, due to an unusually long mesentery and mesocolon. It is interesting in this connexion to note that congenital abnormalities of rotation of the bowel, which are also associated with an exceptionally long mesentery and mesocolon, are also commoner in males. Recurrence of an intussusception, generally within two to twelve months of its reduction, occurs in about 8% or 10% of all cases. It may be that the mobility of the caecum lessens as the child grows older, and so the tendency to recurrence gradually disappears with age.

Symptoms and Signs.

The four cardinal symptoms and signs of acute intussusception are pain, vomiting, the passage of mucus and bright red blood *per rectum*, and the presence of a palpable tumour in the abdomen. Signs of severe shock with pallor and sweating soon follow.

The onset is sudden, generally with screaming, and between the attacks of acute pain the infant may be comparatively quiet but remains pale and listless. It is always wise to listen carefully to the story the mother will relate concerning the illness. She is the best judge of any departure from normal of her child's behaviour. A doctor seeing the infant for the first time, and seeing it between the paroxysms of pain, might not notice the pallor, and could easily be misled as to the serious nature of the trouble. The shock may be very severe, and I can recall having seen a child suffering from intussusception, in whom death occurred from shock alone before any special treatment had been given.

About 70% of the children affected are males, usually between the ages of three and twelve months; and generally the infants are exceptionally well nourished and healthy looking.

Only rarely does a case occur during an attack of gastro-enteritis. An enema given soon after the onset may produce a fæcal result, generally with some bright blood and mucus.

Although all these symptoms are typical, there are exceptions due to the fact that their severity depends on the degree of strangulation of the bowel, which in its turn depends on the length of the mesentery and mesocolon, and therefore on the mobility of the caecum when this portion of the bowel is involved. The symptoms are generally more acute in the ileo-colic and in the enteric varieties. Colic intussusception, which begins in and is confined to the colon, generally occurs in older children; it is not usually associated with such severe pain and shock as the other acute varieties, and abdominal distension may occur early.

The absence of abdominal distension in the early stages of acute intussusception is worth mentioning, because of its bearing on the hydrostatic method of treatment. In most cases the abdomen remains soft and flaccid for as long as twelve or eighteen hours. Hence a mass can generally be readily felt if one uses gentle palpation with a warm hand and refrains from using any pressure during a paroxysm of pain. With the child under a general anæsthetic one should be able to palpate a tumour in all patients examined before severe abdominal distension has occurred.

Always make a rectal examination, as in about 20% of cases the intussusception can be felt *per rectum*. Even when it has not reached the rectum a bimanual examination, with one finger in the rectum, will often enable one to feel a mass which has escaped detection by abdominal palpation alone.

Always examine carefully under the liver edge for an intussusception which has progressed as far as the hepatic flexure, as a mass in this position is sometimes difficult to palpate.

A discharge of blood and mucus from the rectum is present in most cases, generally within four or five hours of the onset. For some reason difficult to understand, in some 10% of cases no blood is seen even after an enema has been given. It is generally in the ileo-colic cases, in which blood may not appear for twenty-four hours or more, and these are the cases in which strangulation occurs early and in which an early diagnosis is most desirable.

Henoch's Purpura and Intussusception.

Henoch's purpura is a rare disease. When it occurs it is generally in children of from three to seven years of age, and it is associated with a characteristic rash particularly about the buttocks. The child is pale, frequent attacks of severe abdominal pain occur, and blood is present in the stools. A mass due to hæmorrhage into the wall of the bowel can often be palpated. One can readily understand therefore how difficult it is sometimes to distinguish between this condition and intussusception. To make matters more difficult intussusception is not an uncommon complication of Henoch's purpura.

Prolapse of the Rectum.

Prolapse of the rectum is a condition which is not uncommonly found in infants and children, and I have met with several cases of intussusception in which the child was wrongly treated as suffering from prolapse of the rectum for several days before the condition was diagnosed correctly. The caecum must be very mobile to allow the apex of an ileo-caecal intussusception to protrude several inches beyond the anus; hence the symptoms in these cases are usually not so acute as usual, and signs of severe shock are often absent. There should be no difficulty in making a correct diagnosis if the mass is returned into the rectum and a rectal examination is made. These intussusceptions can sometimes be completely reduced by hydrostatic pressure, even when they have been present for four or five days.

Treatment.

Treatment should be commenced as soon as the diagnosis has been established. As a general rule the longer an intussusception has been present, the more difficult it is to reduce. In every case, whether the duration has been long or short, an enema should be given to wash out the bowel, and if possible to reduce some of the intussusception. A decision can then be made whether to attempt reduction by hydrostatic pressure, or whether to proceed to an immediate operation. The general condition of the infant will decide this, not the duration of the intussusception. In many cases the condition can be reduced by hydrostatic pressure when the duration has been several days, and others will not yield when the symptoms have been present for only as many hours. If the case is of long standing and the child dehydrated, when an operation will almost certainly be necessary, the preliminary enema should not take longer than a few minutes. In these cases intravenous therapy should be commenced as soon as possible, and the stomach washed out or duodenal suction commenced before any operation is attempted.

If one decides to use hydrostatic pressure, then the preliminary enema should be followed by a second one from a height of three feet six inches. The fluid can be normal saline or ordinary tap water, and is given through a soft rubber catheter about the size of a lead pencil. It is a mistake to apply any lubricant to the catheter, as this makes it more difficult to hold in position. As the enema runs in, keep the level of the top of the fluid at three feet six inches above the child. Hold it in the bowel for six minutes by pinching the buttocks together around the catheter, taking care that none of it escapes. As the colon

fills one can follow its outline, and after a few minutes the enema ceases to run, unless the intussusception is completely reduced, when the fluid runs on again as it passes into the small bowel; then the abdomen becomes uniformly distended and remains so even after the large bowel is emptied. On palpation one can readily appreciate the difference between a gaseous distension and one due to fluid in the small bowel.

This treatment is given with the child under anæsthesia, which, fairly deep at first, should be only light as the abdomen becomes distended. In all cases the child is prepared as for an abdominal operation, and the surgeon is scrubbed up and wears sterile gloves and gown. After six minutes the enema is allowed to escape from the rectum, after which the abdomen is examined for signs of reduction.

Over 60% of all cases of intussusception encountered will be reduced by the method of treatment outlined above. In a number of these, however, an exploratory laparotomy will be required to make certain that reduction is complete. Even when allowance is made for these cases, an operation can be avoided with perfect safety in at least 56% of all cases in which patients come under treatment.

Reduction Under Fluoroscopic Control.

Although in 1920 I used skiagrams after opaque enemata for the purpose of diagnosing reduction of intussusceptions, I have had no experience of the barium enema method of reduction under fluoroscopic control. I therefore quote Nordentoft (1943), who has had vast experience of this method. His book on the subject was written after he had personally investigated a series of about one thousand cases. He states: "All authors agree that there are two criteria of reduction, namely, complete unfolding of the caecum, resulting in its being seen well filled under the fluoroscope and in roentgenograms, and distinct large inflow into the small bowel through the ileo-caecal valve. The second of these is the one which the majority of authors consider the most important, but also the importance of the regular filling of the caecum, especially of its median side, towards the ileum is pointed out." Nordentoft states that this method can be used without an anæsthetic, but maintains that the giving of an anæsthetic facilitates the passage of an enema into the small bowel, possibly becauses it relaxes the ileo-caecal sphincter. He also points out that distension of the caecum tightens the frenula of the ileo-caecal valve, thereby preventing the flow of fluid into the ileum. His procedure is, therefore, to commence without an anæsthetic, and to administer this when the enema does not pass freely into the small bowel. He also warns that a partially filled sigmoid after some of the enema has been allowed to escape from the rectum may be mistaken for small bowel filled with barium. As a completely filled sigmoid is apt to obscure a good view of the caecum, it is necessary to allow a considerable quantity of the enema to escape from the rectum before a diagnosis of reduction can be made.

My criticism of this method is that it will not give any more reliable information than one obtains from an examination of the degree of abdominal fullness or distension after the use of a saline enema. It also requires conveniences not always readily available, such as an X-ray room and the services of a skilled radiographer to interpret results. In support of my contention that one can diagnose complete reduction of an intussusception without the use of X-ray examinations I may mention that over the course of over thirty years I have never sent a child away from the operating room as having had its intussusception reduced only to find out later that it had not been reduced.

Hydrostatic Pressure in Long-Standing Cases.

Hydrostatic pressure will not reduce those intussusceptions that are very difficult or impossible to reduce when operated on, that is to say, when strangulation has occurred and gangrene is threatened. But all cases of over twenty-four hours' or even several days' duration are not of this kind. It is impossible therefore to say beforehand just how difficult reduction is going to be. Even in long-standing cases hydrostatic pressure will not do any harm provided it is not persisted in for longer than a few minutes. There is always a portion of the intussusception which will be reduced, and it is better to reduce this portion with hydrostatic pressure before operation than to have to do it manually after opening the abdomen. In cases of long duration there may be abdominal distension, which is usually absent in early cases. Even in cases met with within the first twenty-four hours, there may be some fullness of the abdomen but not amounting to actual distension. This fullness may be noticeable or even more pronounced after the use of hydrostatic pressure, even when the intussusception has not been reduced. One can readily distinguish between this gaseous distension and the distension which occurs as the result of fluid passing into the small bowel. I mention this fullness as it might possibly lead the inexperienced into thinking that reduction had occurred when there still remained a small unreduced portion. The gaseous distension would not prevent the palpation of either an unreduced intussusception or the thickened and œdematous segment of bowel so often seen when the intussusception has been reduced.

Operative Treatment.

When the intussusception has failed to be reduced, or when only a small portion of it has been reduced, a right paramedian incision with the umbilicus at about its centre should be made. When only a small portion remains unreduced, or when the greater portion has been reduced and one is doubtful whether reduction is complete, then a muscle-splitting incision similar to that commonly used for the removal of an appendix is best. When the intussusception has extended as far as the descending colon or rectum, the first part of the reduction must be made inside the abdomen by applying one hand outside and several fingers of the other hand inside. After the intussusception has been reduced as far as the ascending colon or caecum, the unreduced portion is delivered and reduced by manual compression assisted by the application of warm compresses. It is not advisable to try to pull the intussusceptum away from the intussuscipiens except possibly during the reduction of the last few inches. Dilatation of the neck of the intussusception by the occasional insertion of the finger during compression will help reduction. When reduction is found to be impossible, resection will have to be seriously considered, although in a number of cases patients have been reported as having recovered after lateral anastomosis was performed and the unreduced portion of the intussusception was left *in situ*. If the infant is obviously too ill to stand a resection followed by lateral anastomosis, then a Mikulicz type of resection should be performed. In this operation the unreduced portion of the gut is exteriorized and excised after the abdominal wound had been closed securely around it. When either type of resection has been carried out, the parenteral administration of fluids and of antibiotics such as penicillin and streptomycin will improve the chances of recovery.

Complete reduction can sometimes be accomplished by prolonged manual compression, only to leave a length of small bowel of doubtful viability. One has seen cases of this kind in which damaged but viable bowel has been returned to the abdomen, and intestinal obstruction has occurred months later owing to the contraction of a ring of fibrous tissue, following a ring ulcer which had occurred at the apex of the intussusception. It is always difficult to decide when to stop attempts at reduction, so that in cases in which this fails, resection can be carried out with a good chance of the child's survival.

Dangers and Difficulties Associated with Use of Hydrostatic Pressure.

In the following circumstances dangers and difficulties may be encountered when hydrostatic pressure is used.

1. Appendicitis in infancy wrongly diagnosed as intussusception. It is conceivable that a child with acute appendicitis might be wrongly diagnosed as suffering from intussusception, and if hydrostatic pressure was used in such a case it might have disastrous results. Such an occurrence would not be so likely to happen in older children as in infants, in whom appendicitis is comparatively rare.

2. Intussusception starting in a Meckel's diverticulum. When a Meckel's diverticulum has been the starting point of an intussusception hydrostatic pressure will do no harm, but it is unlikely to succeed in reducing the intussusception completely. In such cases a mass will be palpable after the administration of the enema, and an operation will therefore be necessary.

3. Intussusception involving the appendix. Cases occur in which the appendix is either completely or partially inverted and thus forms the starting point of an intussusception. In such cases hydrostatic pressure might succeed in reducing the greater part of the trouble, but leave the inverted appendix unreduced. There would be no barrier in such cases to the passage of the enema into the small bowel with production of the signs of complete reduction. In those rare cases an operation would be necessary.

4. Polypi of the small bowel. These are rare, but do occur in either the jejunum or ileum. They are usually met

with in children over the age of twelve months. When they occur in the ileo-caecal region, hydrostatic pressure might succeed, but the intussusception would recur; and recurrent intussusceptions, unless there is a long interval between the attacks, should be operated on.

5. Lymphoid hyperplasia and thickened and œdematous bowel. After the reduction of an intussusception, the ileo-caecal region sometimes remains thickened and œdematous for several days. In such cases one often sees what appears to be hypertrophied lymphoid tissue, and as this condition is readily palpable it may give rise to the diagnosis of recurrent intussusception.

6. Perforation of damaged bowel. When hydrostatic pressure is used in long-standing cases, one has to be careful not to use a greater pressure than that obtained from a column of water three feet six inches high. The only case of perforation of the bowel which I have seen was in a patient in whom the intussusception had been present for three days. The abdomen in this case was palpated whilst it was distended after complete reduction, and no fluid had been allowed to escape because the catheter was held firmly in the bowel. The child developed general peritonitis, and a post-mortem examination revealed a pinhole perforation at the base of a ring ulcer, which had formed at the apex of the intussusception. The intussusception had been an ileo-colic one and had commenced in the ileum about six inches from the ileo-caecal sphincter.

Dangers of Operation Either Primary or for the Purpose of Verifying Reduction.

The opening of the abdomen of an infant is not altogether free from danger and should be avoided therefore when it is unnecessary. Ravitch and McCune (1948) found that in seven out of thirteen instances it was possible to grow pathogenic bacteria from the serosal surface of viable intussuscepted bowel. This fact may explain some of the instances in which an infected wound and peritonitis follow an open operation. In those cases in which distension of the abdomen occurs after treatment by hydrostatic pressure, the unnecessary opening of the abdomen becomes a more difficult and dangerous procedure, because of the large amount of fluid present in the small bowel.

Operations are necessarily followed by a much higher morbidity rate than is found in those patients not operated on, so that patients operated on have a much longer stay in hospital, with its attendant risks of infection of different kinds. In addition to the dangers already mentioned, intestinal obstruction may occur years later owing to adhesions which occurred—especially between the small bowel and a mid-line incision—at the time of the original operation.

P. L. HIPSLEY,
Sydney.

References.

NORDENTOFT, JENS MUNCK (1943), "The Value of the Barium Enema in the Diagnosis and Treatment of Intussusception in Children", Einar Munksgaard, Copenhagen.
RAVITCH, MARK M., and MCCUNE, ROBERT M. (1948), "Reduction of Intussusception by Barium Enema—a Clinical and Experimental Study", *Ann. Surg.*, 128: 904.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Section of Occupational Medicine of the New South Wales Branch of the British Medical Association was held on October 2, 1952, in the Council Room, British Medical Association House, 135 Macquarie Street, Sydney, DR. M. R. FINLAYSON in the chair.

Rehabilitation and Placement of the Incapacitated Worker.

DR. W. E. GEORGE read a paper entitled "Some Aspects of Rehabilitation and Placement of the Incapacitated Worker" (see page 435).

DR. G. G. BURNISTON read a paper entitled "Rehabilitation and Placement of the Incapacitated Worker" (see page 440).

DR. C. C. MCKELLAR referred to the rehabilitation centre at the factory of Vauxhall Motors at Luton, England, and said that patients there with Colles's fracture returned to work after thirty-six hours.

DR. A. L. LANGLEY referred to the rehabilitation centres at Vauxhall Motors and at the Austin Motor Company, in Birmingham. He said that he thought that similar centres should be established in industry in Australia, and asked whether that would be feasible.

DR. J. G. HADLEY asked whether the addresses by Dr. George and Dr. Burniston could be published. He referred to the unnecessarily long period of time which was often lost between the occurrence of injury and the commencement of rehabilitation.

DR. B. SHORT said that industrial management should properly appreciate its responsibility in regard to rehabilitation of the disabled.

DR. J. ROSSELL discussed the importance of incentives and said that he thought large industries should have their own hospital and rehabilitation unit.

DR. J. T. CULLEN, in speaking of the value of incentives, agreed with Dr. George that with a high lead bonus at Broken Hill, rehabilitation problems did not occur.

Dr. Finlayson, from the chair, thanked Dr. George and Dr. Burniston and the other speakers for their contributions to a most important subject. Dr. Finlayson described briefly the activities of the Department of Railways in regard to rehabilitation. He explained that the rehabilitation officer personally investigated all cases, and a small retraining centre had been organized. He thought that the organization of such a unit in the workshop itself was desirable.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held at the Alfred Hospital, Melbourne, on October 8, 1952.

The Integration of Curative and Preventive Medicine.

DR. JEAN MACINTOSH, Medical Officer of Health for Maternity and Child Welfare in Birmingham, adviser to the Ministry of Health on maternity problems, the welfare of spastics *et cetera*, former Vice-President of the British Medical Association Section of Child Health, and a consultant to the World Health Organization, who was visiting Australia under the auspices of the Nuffield Foundation and the Vera Scantlebury Brown Trust, discussed the integration of curative and preventive medicine with special relation to pædiatrics. She said that the integration of curative and preventive medicine had been discussed a great deal in the United Kingdom. Great hopes were placed in the National Health Service. It was thought that the medical officer of health would be the connecting link or bridge between the various branches of the service. That had not so far happened to any great extent. Most of the money available had been poured first of all into the hospital services—in other words, into buildings and remuneration for consultants *et cetera*—and secondly, and somewhat belatedly, into the general practitioner service. In contrast, the public health services had received little additional remuneration to compensate for the rise in the cost of living, and indeed seemed to have been the Cinderella of the medical profession, deprived of much of their former glory in that the administration of their hospitals had been taken from them. There was a feeling abroad that their achievements in the prevention of such diseases as diphtheria, smallpox and cholera had been forgotten. That mood of despondency was showing some sign of passing, however, and it was being realized that the public health medical service still had an important part to play.

The first indication that the preventive medicine training of medical students required revision came with the Goodenough Report. There social medicine was defined as a particular conception of medicine that regarded the promotion of health as a primary duty of the doctor, that paid heed to man's social environment and heredity as they affected health, and that recognized that personal problems of health and sickness might have communal as well as individual aspects. The report added that there was growing support for the view that the general medical practitioner should become the health adviser of his patients and their families and should participate to a greater extent in the conduct of the health services of the country.

In many medical schools preventive medicine had been too long an affair of drains *et cetera*—a dull affair indeed to the medical student and, with its long-term view, difficult to comprehend. Yet to consider the patient in isolation in hospital, divorced from his home surroundings, was to fail to comprehend the true situation and to nullify the value of a good deal of the treatment. If students were to be fitted to become health advisers and members of a new comprehensive health service, the ideas of social medicine must permeate the whole of medical education. A new orientation of medical education, a big expansion in the social work of teaching hospitals and fundamental changes in the outlook and methods of most of the teachers were involved. The teaching of social medicine should permeate the whole curriculum. To achieve that was not easy, as it required the cooperation of curative physicians and surgeons whose attention was concentrated on the individual patient in the bed and who probably, with no training in preventive medicine, were inclined to regard its practitioners as intolerable bores. The fact that the majority of students would enter general practice was overlooked. In the training of students, the attention of both teachers and students was concentrated, as a general rule, on the stages of the disease seen between the time a patient first appeared in hospital and the time he was discharged from hospital. Their main interest was in obscure and rare diseases, whereas the treatment of the patient should be decided against the background of his home conditions, his work and how his leisure was used. His recovery could be retarded by his mental state while under treatment, and his full restoration to health could depend largely upon what facilities for rehabilitation were available to him and on the social circumstances in which he found himself after cessation of active medical treatment.

Professors of social medicine had to exercise unique tact and patience over a period of years if they were to achieve their ends. Joint sessions should be held with physicians and surgeons—the curative physician demonstrating the details of the illness and the social medicine physicians the social implications of the disease and the problems which might arise for the patient in his domestic situation. Visits of observation should also be made to places of interest which would demonstrate the various aspects of social conditions. It was fundamentally important that the medical student should understand how people lived in their own homes. He should visit the home in association with a general practitioner or under the guidance of a health visitor, and possibly the patient's place of employment if a works doctor or welfare supervisor was employed there. He should also follow up a few patients on their discharge from hospital. At all stages, the services of almoners, health visitors and psychiatric social workers should be utilized in the training of students.

Professor J. N. Mackintosh, of the London School of Hygiene, had said: "The student's understanding of social medicine is hopelessly inadequate unless he is given a practical knowledge of housing conditions and their effects on health. This can be undertaken in the course of his social studies in the field and his reports would be incomplete without some assessment of housing, overcrowding and the environment generally. Overcrowding, even apart from slum conditions, is always a menace to health, but if the student regards it from the physical point of view alone he will seriously under-estimate its significance. The ill-effects upon mental health, working capacity and general well-being are apt to be overlooked, and it is an important part of the teaching of social medicine to emphasize the undermining effect of overcrowding on the whole structure of family life."

The student should learn something of the communal and administrative aspects of preventive medicine and should acquire an elementary knowledge of the duties and responsibilities of the medical officer of health. He should also be given a short elementary account of the development of the medical and social services, of their relation to the social structure and of how progress in the promotion of health had been hindered by such evils as bad housing, ignorance, unemployment and destitution.

Dr. Macintosh then described details of the curriculum arranged by the department of social medicine in Birmingham. This included a course of lectures, and a number of clinical demonstrations in social medicine, together with field visits.

Subjects included in the curriculum were the evolution of medical and social services, the control of communicable and nutritional disease, occupational and industrial health, epidemiology, tuberculosis, parasitology, vital statistics, genetics, mental hygiene, care of the aged and chronic sick, and care of the temporarily and permanently disabled. Lectures were also given on housing, population trends, vocational training, education, employment, marriage and reproduction.

In referring specifically to pædiatrics, Dr. Macintosh said that in Birmingham the student spent three months at the Children's Hospital in the fifth year of the course, and whilst there received instruction in the various local authority services. Dr. Macintosh provided the following detailed schema of the syllabus:

Maternal and Child Health (Department of Pædiatrics and Child Health, Fifth Year).

Lectures (one hour): Social services in relation to the pre-school child. Care and management of the healthy newborn infant. Care, feeding and management of premature infants.

Lecture demonstrations (two hours): (*a*) Maternity and Child Welfare Department: General survey showing the relationship of the various services in the department to each other and to the private practitioner. Health visiting and health education. Care of the newborn in domiciliary midwifery service and care of the illegitimate child: deprived children: adoptions. Visit to infant welfare centre. Visit to premature baby ward. Visit to day and residential nurseries. (*b*) School Medical Service: School for educationally subnormal. School for the physically handicapped: cerebral palsy. Open-air school. School for the deaf. School for rheumatic children. Child guidance clinic: speech therapy. School for blind. (*c*) Tuberculosis services related to child health.

Dr. Macintosh said that the next important point was to preserve and inculcate the preventive outlook in the general practitioner. That could not be done if he was overburdened by too many patients. Too soon his work became routine and his primary function as a diagnostician of disease in its early stages was lost. The National Health Service had made a general practitioner available to every person in the country. The first effect of that was to swamp the general practitioners with work, but when more practitioners became available and the work was more evenly divided, it was hoped that they would have more time to study the preventive aspect of their work.

It had been said that good general practice should mean the application of the principles of preventive medicine, in other words, the effective treatment of emotional and social problems combined with competent general medical care. At present in the United Kingdom it was difficult for general practitioners to focus their attention on the maintenance of health. *The Lancet* had said recently: "Prevention cannot be exhibited like a drug: it has to be taught to the student and then through him to his patients." Besides acquiring knowledge and experience of teaching methods, students must also learn something of the content of preventive medicine—of the material to be taught to patients and their families. Practical instruction was required in the work of the family doctor. It was still not fully recognized that it was mainly in the homes of the people that the student appreciated the great possibilities and the enormous difficulties of prevention. A period of apprenticeship which brought the student into direct touch with the home was the finest introduction to the practice of preventive and social medicine. That was being arranged in Birmingham by giving students the opportunity to gain some experience in general practice in the course of their training.

General practitioners should be encouraged to think in terms of communities. The National Health Service had extended the functions and duties of the public health nurse or health visitor to the whole family. She and the general practitioner should work in partnership in their area. The health visitor must think in terms of the families in her area—not merely of the mothers and children. It was important that she should know personally all the general practitioners who attended her families. When a new health visitor came to a district she should call on the general practitioners of her families. Similarly, if a new doctor arrived in the district, he should call on her. The district nurse and the midwife must also have the preventive outlook.

It was important that all the workers in the personal health services in an area should know each other, and therefore there should be a focal point round which they could congregate—the maternity and child welfare centre or the health centre. That should also be the centre from which the health teaching for the area would be organized. In Birmingham from time to time meetings were organized

between the general practitioners and all the health workers in the area.

One of the factors which caused most consternation in public health departments was their separation from the infectious diseases hospitals and the tuberculosis hospitals. In discussing how integration with the hospital service could be achieved, Dr. Macintosh said that one method was the sending of discharge notes not only to the patient's private practitioner, but also to the medical officer of health, so that the patient could be followed up by the public health nurse. That, however, was a very impersonal way of doing things. It seemed better that a health visitor should be attached to each hospital to act as a link between the hospital and the patient's home. There the question of the relationship with the almoner was important. In Birmingham they had reached a happy medium between the duties of both parties, in that the health visitor and the almoner worked in partnership—with health visitors attached to the hospitals to form the connecting links.

Dr. Macintosh said that there remained the training of the post-graduate in preventive pædiatrics. In the United Kingdom child health institutes had been established in most universities. Their organization varied. In Birmingham the local health authority subscribed £5000 *per annum* to the funds of the Child Health Institute. Local authority medical officers spent two sessions a week in the Children's Hospital for a period of one year, and registrars from the Children's Hospital took two sessions a week at local authority clinics.

The pædiatricians were probably the first group of curative physicians in Great Britain to realize that curative and preventive pædiatrics must be closely linked if the best results were to be obtained. As a result, the course for the diploma of child health had been considerably modified in recent years, and one public health medical officer was now included among the examiners. In the examination, special emphasis was laid on the preventive aspects of disorders of childhood. Candidates were required to have had not less than twenty attendances at welfare centres and school medical service clinics, including evidence of having attended at a child guidance clinic, special schools and residential or day nurseries, in addition to their medical training in a children's hospital or in the children's department of a recognized general hospital.

The function of the diploma was not always understood. Its object was to fit people to be school medical officers and child welfare officers in the service of the local authority. In no sense could it be regarded as a specialist qualification, although it was disturbing to find that in some parts of the world it was so regarded. Neither was it a qualification in public health administration.

Dr. Macintosh concluded by saying that she thought that on the whole over the past few years some progress had been made in the integration of curative and preventive medicine, but she would quote the words of Professor Winslow: "Much will have to be accomplished by medical educationalists before the satisfaction the average physician finds in his direct relation to his patient can be replaced by his satisfaction in his service to the community as a whole."

DR. ROBERT SOUTHBY asked Dr. Macintosh whether students were sent to the homes of those patients allotted to them in hospital.

Dr. Macintosh, in reply, said that although they occasionally visited homes that was not in an official capacity, and depended on the interest of the individual student. In their final year, students were allotted to general practitioners on a voluntary basis. However, the suggestion introduced by Dr. Southby was an excellent one.

DR. V. L. COLLINS inquired about the selection and training of public health nurses.

Dr. Macintosh answered in detail. She said that nurses must be over twenty-five years of age and fully trained in general nursing with six months' training in midwifery to qualify for selection.

The course consisted of nine months' practical training, with university lectures in numerous subjects, including industrial medicine, mental hygiene, marriage guidance, birth control, geriatrics, speech training, rehabilitation schools, prison and court procedures, juvenile delinquency and tuberculosis. After that course of instruction there was an examination. The trainees were paid a full salary during the course, but were required to remain in the service for two years. They finished very well trained.

DR. JOHN WILLIAMS inquired about the attitude of the hospital almoners to the health visitors, and asked whether almoners visited the homes. In Melbourne there was a tendency for almoners to be kept within the hospital.

Dr. Macintosh said that almoners could do field work if they desired. However, they appeared to be satisfied with their relation to the scheme of things in Birmingham at least, where there was full cooperation between the almoners and health visitors. The system came into operation with the approval of the almoners' committee.

DR. JOHN COLEBATCH suggested that there was a danger of overloading the community with social workers, and asked whether Dr. Macintosh thought that clinicians trained in public health would be any less efficient in practice and in teaching than the full-time worker in social medicine. Dr. Colebatch also asked whether there was a chance of the public health nurse displacing the almoner entirely.

Dr. Macintosh said that in her opinion it was necessary to have a public health authority on the university staff. There would be a continuing need for professors of social medicine to administer public health research of a nature which could not be adequately handled by clinicians. In reply to Dr. Colebatch's second question, Dr. Macintosh said that attempts had been made to combine the duties of almoner and public health nurse with those of an all-purpose social worker. One of the main difficulties was the length of training required. Within another decade that might eventuate. It was fundamental, however, that the public health nurse should have a basic training of nursing and medicine.

Dr. Colebatch inquired about the value of family groups.

Dr. Macintosh said that orphans or delinquents should be boarded with carefully selected families. If there were insufficient suitable families, institutions should be divided into cottages with a "father" and a "mother" and if possible a distribution of boys and girls into the one family group. In the new housing estates and even in day nurseries attempts to maintain the family group system were made.

DR. LAWRENCE STOKES asked about the future of wards of the State who reached the age of fifteen to sixteen years.

Dr. Macintosh replied that an allowance was made to the foster parents until the age of eighteen years was reached; so that there would be a home to which the child could return if necessary. If a child showed promise, the local authority could further the education even to university standard. Many children were adopted.

DR. JOHN WILLIAMS asked about supervision in the homes.

Dr. Macintosh said that carefully chosen and specially trained personnel termed "boarding out visitors", many of whom had been public health nurses, were responsible for the supervision.

DR. MARY LANE asked whether school medical officers were responsible for the survey of tuberculosis in school children. Dr. Macintosh replied that that duty was carried out by a separate authority.

DR. ELIZABETH WILMOT said that the duties of almoner and public health nurse were distinct and that there was a place for both in future schemes. There was no reason why their duties should overlap, and they should be able to cooperate with mutual benefit.

DAME JEAN MACNAMARA asked whether the scope of the scheme outlined by Dr. Macintosh extended to rural areas.

Dr. Macintosh replied that it was confined to the city of Birmingham.

Severe Meningococcal Septicæmia.

DR. LAWRENCE STOKES briefly demonstrated by means of coloured films a female child, aged two years, who was still in hospital convalescing from severe meningococcal septicæmia. Large ecchymoses were scattered over the whole body, and many were so extensive that skin grafting was at one stage considered unavoidable. However, separation of the necrotic areas and satisfactory healing had commenced, and it appeared that grafting was unnecessary.

Banti's Syndrome.

Dr. Lawrence Stokes then presented a female child, aged one year and ten months, with a probable Banti's syndrome. The child had been three weeks post-mature with a birth weight of eight pounds twelve ounces. There were three older children—all well. The child developed umbilical sepsis, and at the age of six weeks she was admitted to the Alfred Hospital with pyæmic multiple osteomyelitis and scattered subcutaneous abscesses. The causative organism was *Staphylococcus aureus* (penicillin-resistant). Blood investigation showed a definite hypochromic anæmia. She was very ill at first, but responded well to streptomycin and aureomycin and, in addition, surgical drainage.

She was readmitted to hospital at the age of eight months, and on examination she was pale because of a definite

anæmia and very weak. There was a history of several small hæmatemeses during the previous few weeks, and blood transfusions were necessary.

She was admitted to hospital once again at the age of thirteen months for surgical treatment of a chronic recurring sinus in the right occipital region. On the following day she suddenly had a severe hæmatemesis which made transfusion necessary. The spleen was definitely enlarged, but the superficial lymph glands were within normal limits and there was no appreciable enlargement of the liver. Blood examination again showed a hypochromic anæmia; otherwise there were no definite abnormalities. The results of fragility tests were normal and the Coombs test result was negative. A subsequent barium meal examination showed no abnormality. Some fæcal occult blood was found on one examination, but not subsequently. She was discharged to her home after one month in hospital, but three days later she had a very severe hæmatemesis and was again admitted to hospital. Her hæmoglobin concentration was found to be very low, and she was extremely ill. A transfusion was immediately performed, and this was followed by smaller transfusions. Œsophagoscopy was carried out later when her general condition had improved. The mucous membrane at the cardiac end of the œsophagus was found to be injected and "bled" easily, but no varices were seen. Liver function tests showed only very slight impairment. Gastric skiagrams were normal, and a similar result was obtained when the examination was repeated. A bone marrow puncture did not show any abnormality, and there was no Rh incompatibility on repeated examination. A few weeks after the last admission to hospital the baby was looking very well and eating splendidly.

Dr. Stokes said that the problem at that stage was whether any surgical investigation should be carried out or whether there should be no interference in the hope that further hæmatemeses would not occur. It was necessary to remember that the baby already had had two severe "bleeds", in addition to several preceding smaller ones. Many transfusions had already been performed, with the result that there were very few suitable superficial veins left, and should there be another severe hæmatemesis those veins would be utilized, leaving none available if surgery was necessary. After a great deal of thought and discussion with the parents, it was decided to operate. Operation was carried out in May, 1952, by Mr. Officer Brown. The object was to remove the spleen and, if necessary and practical, to perform also a spleno-renal anastomosis. When the abdomen had been opened, the pressure in the splenic vein was measured and proved to be normal, so a splenectomy only was performed. The convalescence was uneventful, apart from one upper respiratory tract infection, and the baby was gaining weight satisfactorily. Subsequent blood examinations still showed some hypochromic anæmia, but there was a well-marked lymphocytosis and a definite increase in the number of blood platelets. The last-mentioned findings were almost certainly the result of the splenectomy. The Coombs test result was still negative. The liver was clinically normal in size for the first year of life, but shortly after some enlargement was noted. At the time of splenectomy the lower edge extended about one inch below the right costal margin, but no further enlargement had been detected since.

DR. ROSS HAYES, in opening the discussion, said that there were several additional features on which he would like to comment. Firstly, when the child was first admitted to hospital at the age of six weeks, material taken from the abscesses of the lower central incisors and the shoulder yielded a pure culture of *Staphylococcus aureus*. The organism was resistant to penicillin (presumably a penicillinase producer), but was very sensitive to sulphadiazine, "Chloromycetin", streptomycin and aureomycin, and the last-mentioned two antibiotics were used in the treatment. From the clinical history it was reasonable to assume that the site of entry of this organism was probably the umbilicus. The same organism was grown four months later from the discharging sinus.

Secondly, the anæmia which had been present since the patient was first examined was always of a hypochromic type. There had never been a leucopenia or a thrombocytopenia. Fragility and Coombs test results had been normal. After her two severe hæmatemeses her hæmoglobin content was in the order of three to four grammes *per centum*. Since splenectomy five months previously the total leucocyte count had been persistently elevated to the order of 15,000 to 18,000 per cubic millimetre, with a lymphocyte count of approximately 10,000 per cubic millimetre. There had also been a thrombocytosis of the order of 1,000,000 to 2,000,000 per cubic millimetre. Bone marrow counts and sections had shown a normal active cellular marrow.

Thirdly, the spleen, at operation, showed many adhesions to neighbouring structures and was noted to be the size of a normal adult spleen. Histologically, the follicles were prominent and the sinusoids were dilated with rather thickened walls. Two pieces of liver were taken for biopsy at the time of operation, one from the caudate lobe and the other from the upper surface of the left lobe. Those showed slight distortion of the normal liver architecture with an increased amount of mature collagen in the portal tracts. There was slight but definite bile-duct proliferation, but there was no increase in inflammatory cells in the portal tracts and therefore no evidence of present activity.

The problem was whether the changes occurring in the liver and spleen had any relation to the previous umbilical sepsis and subsequent pyæmia, or whether the two processes were independent.

DR. JOHN MCLEAN said that there were several points for discussion. Firstly, with regard to the ætiology, the presence of umbilical sepsis and the subsequent splenomegaly suggested splenic vein thrombosis as a causative factor, but it was doubtful if that also explained the chronic hepatitis. In many such cases profuse peritoneal adhesions occurred. Was it possible that there was an increased tendency to fibrosis, which could cause obstruction of portal veins and hepato-lienal fibrosis?

Secondly, with regard to treatment and prognosis, Dr. McLean said that he was very doubtful about splenectomy alone, as a means of preventing further hæmorrhage, and would refer to three patients who had been treated in the Alfred Hospital.

V.W., a girl, aged ten years, had had frequent attacks of hæmatemesis over a period of five years, for which repeated transfusions were given—usually by the direct method. Splenectomy was performed when she was aged seven years, but there was no abatement in the frequency of hæmatemesis, and she died from fatal hæmorrhage about three years after the operation.

The second patient, J.M., a boy, aged eight years, had suffered from chronic hepatitis and splenomegaly with occasional attacks of hæmatemesis. Splenectomy and spleno-renal anastomosis were performed. Although after the operation there was improvement in his condition, he died about twelve months later from a sudden severe hæmorrhage.

The third patient, at present in the Alfred Hospital, was a woman, aged twenty-six years, who when aged twelve years had had her first hæmatemesis. Since then, she had had innumerable hæmorrhages and innumerable transfusions. During the past twelve months she had been almost continuously an in-patient. A number of operations had been performed, including splenectomy, omentopexy, cauterization and ligature of œsophageal varices, but bleeding was worse than ever. Dr. McLean said that in his opinion the only hope for the third patient was excision of the bleeding area. Such an operation of œsophagogastrectomy had been successfully performed by Hunt, and it was an operation which might be required in the future in Dr. Stokes's case—if further hæmorrhage occurred.

DR. ROBERT SOUTHBY quoted the case of a female child, aged two and a half years, whom he had treated. The child was diagnosed as suffering from Banti's syndrome, with frequent hæmatemeses. A liver biopsy showed normal tissue, and because of that splenectomy was performed. There was one further hæmatemesis shortly after operation, but the child had since been well for over five years.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

GRATUITOUS MEDICAL ADVICE.[1]

[*The Australian Medical Gazette*, October 30, 1869.]

WE regret to say that the abuse so severely animadverted on in the following extract from a leading article in the London Times of the 10th May flourishes with rank luxuriance in Melbourne: "It is not pleasant to find that

[1] From the original in the Mitchell Library, Sydney.

half our people, even in this wealthy and thriving metropolis, are what we must take the liberty to call beggars and rather unconscionable beggars. It is not pleasant to find that people living in good houses, receiving fair wages, enjoying many comforts and luxuries, dressing well, taking holidays and outings, indulging in free opinions and hoping to rise in the world are not prepared to pay for the necessaries of life—as medicines certainly are—if they can get them for nothing. It is not pleasant to find them thinking nothing of the injustice done to the public and particularly to the medical profession. It is not pleasant to find the medical profession itself subject at once to a colossal injustice in an exceedingly inadequate payment at a pauper scale and to a vast mass of monopolies in the form of official and privileged positions."

Correspondence.

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL.

SIR: In your issue of today's date you comment on the inadequate salaries paid to senior medical research Fellows by the National Health and Medical Research Council, and with this I entirely agree. That these salaries paid by the Council have a very definite relationship to the inadequate salaries paid by universities to their senior lecturers in medical faculties is not known. Most of the medical research fellowships are held in university departments where the Fellow works under the nominal supervision of the professor in charge of the department. It is felt by the Committee that it would be quite wrong for the Fellows to be paid a higher salary than the senior lecturer in the department who is regarded as second in charge of the department.

The salaries paid to junior medical research Fellows range from £800 *per annum* up to £1000 in the third year *plus*, of course, cost-of-living allowance, which at the time of the November meeting, 1952, was £270 *per annum*. Should a junior medical research Fellow at the end of his third year desire to continue doing research, he then becomes a senior research Fellow and commences at £1300 *plus* cost of living, namely, £270, and superannuation benefits.

Yours, etc.,

W. F. SIMMONS,
Acting Chairman, Medical Research Advisory Committee, National Health and Medical Research Council.

Bexley,
New South Wales,
March 14, 1953.

VISUAL EDUCATION IN OTOLOGY.

SIR: The Auralgan Research Division, subsidiary of our principals, the Doho Chemical Corporation of New York, have made available to us, on loan, a valuable series of medical teaching films and slides. This material, which is strictly ethical and non-commercial, can be loaned for display to accredited medical societies and student or post-graduate groups in Australia, at no charge. The slides are immediately available, also the films "Clinic on Chronic Otitic Purulencies" and "Clinic on Petrositis, Meningeal". Others as listed will be arriving in rotation from the United States.

If you care to make it known through your columns that this material is available for display to suitable groups in Australia, we will be pleased to receive applications, and include the applicant groups in the rota circuit we are organizing for the display of this material throughout the Commonwealth.

Yours, etc.,

B. M. GREEN MEDICAL DISTRIBUTORS PROPRIETARY LIMITED.

110 Little Bourke Street,
Melbourne, C.1,
March 11, 1953.

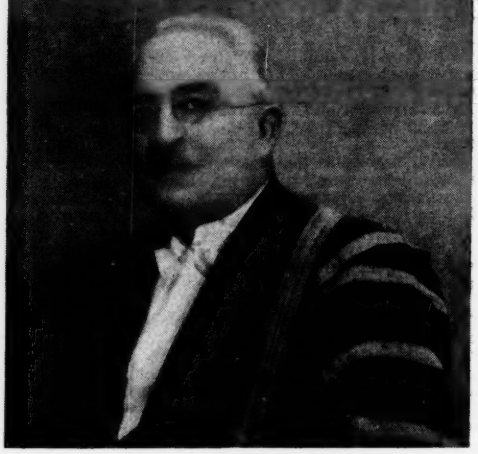
Obituary.

CECIL PURSER.

WE are indebted to Dr. Herbert Schlink for the following appreciation of the late Dr. Cecil Purser.

Cecil Purser, aged ninety years, died in his sleep after a day pottering about in his beloved vegetable garden at "Ascot", Grosvenor Road, Wahroonga. (It was his last home, which he must have bought from a racing man as I have never known him to attend a racecourse.) So passed away one of the great giants of early Sydney medicine. He was so humane and so kindly of nature that he revolted at combating his known enemies, and so many took him for a weak man. If they but knew his strength of character and decision they might have regarded him otherwise, but he hated to offend even his bitterest enemy.

Born as he was in the salubrious climate of Baulkham Hills, where his father had one of the finest orchards then in existence, you can, as his old friend Horry Hinder said, understand why Charlie (as his mates called him) had such a lovable and charming personality. He was educated at Castle Hill, but was always interested in Newington College,



Stanmore. One of his accomplishments was a working knowledge of the Chinese language, which he picked up as a boy from the Chinese market gardeners of the district in which he was born. He entered the University at about the time the medical school was founded by Sir Thomas Anderson Stuart. He graduated B.A. in 1885 and was amongst the second or third batch of medical students graduating M.B., Ch.M. in 1890.

Although he was attached to the Royal Prince Alfred Hospital as a clinical student, he attended instruction at the Sydney Hospital under Dr. Chambers, the first man to specialize in gynæcology in Sydney Town. Purser often spoke of the old man, who always insisted on sleeves rolled up beyond the elbows and plenty of soap and water before you attempted a vaginal examination. Alexander MacCormick, a coming young surgeon of those days, always took Purser along when he operated in the home, and Purser frequently spoke about the amputation through the shoulder joint of an injured Balmain labourer which MacCormick had the courage to perform in a slum home in that district.

Purser proved himself so industrious and able a student and resident medical officer at Royal Prince Alfred Hospital that Sir Alfred Roberts appointed him medical superintendent from 1891 to 1893. His efficient and happy administration of this office is remembered to this day, and on his retirement the staff presented him with a desk, at which he was proud to work throughout his professional life. His honorary service at the Royal Prince Alfred Hospital was long and meritorious: assistant physician, 1896-1898; senior

physician, 1898-1912; consultant physician until his death. Owing to his outstanding administrative efficiency, he was appointed a director of the board of management from 1909 to 1920, vice-chairman from 1920 to 1923, and chairman from 1924 to 1933, when he retired frustrated by the inability of the then Government to pay for the upkeep of the beds and the refusal of the banks to give further credit to the institution. He had the unpleasant task of closing down 200 beds, and the writer fears that history might and often does repeat itself and force him into the same boat as his old patron and master.

Apart from his honorary hospital service, Purser also served the University. He was elected a Fellow of the Senate in 1909, Vice-Chancellor from 1917 to 1918, and Deputy Chancellor from 1924 to 1925, retiring in 1939. Apart from giving his services to the sick, he lectured, taught and examined groups of medical students for over fifty years. He was a whole man, and although an original student of Saint Andrew's College within the University and on its board of trustees, he aided the development of Wesley College and was a trustee from its foundation in 1918; its recently erected wing is called after him. He was also a member of the board of trustees of the Women's College within the University.

He was a past president and an honorary member of the University Medical Society, a Foundation Member of the Royal College of Physicians and a member of the New South Wales Board of Health from 1914. He served many other institutions—the Carrington Convalescent Hospital at Camden from 1895, being honorary secretary from 1895 to 1920, vice-chairman and president from 1920 and still on the board at his death. He was an honorary physician to the Waterfall Sanatorium, an honorary life member of the Queen Victoria Home for Consumptives, honorary medical referee for the R. T. Hall Sanatorium for Consumptives, Hazelbrook, New South Wales, from its foundation until 1936, a member of the consultative council of the War Memorial Hospital, Waverley, from its foundation in 1918, and a life member of the British Medical Association and the Royal Society. He served as an honorary major, Australian Army Medical Corps, during the 1914-1918 war. Owing to his special knowledge of pharmaceutical drugs, he was made president of Australian Drug Houses, which ultimately amalgamated with Elliott Brothers, and he remained on the combined board until his death.

He also was interested in the land and placed his two sons thereon. He was very fond of the country and of outdoor sports. In his young days he was champion 200 yards sprinter of New South Wales and a first-class cricketer.

I have known Charlie Purser for over fifty years. I was his first house physician in 1907. I acted as his *locum tenens* in his practice at Lewisham and was accepted as a friend of his family. Although he suffered many serious illnesses during his ninety years, I have never known a man who accepted the good or the bad of life with more courage, equanimity and cheerfulness. His very presence breathed goodwill and the joy of living. The profession and the many sick whom he served can ill spare such a great character. He was one of the finest examples of the family doctor. Thousands join me in offering deep sympathy to his sorrowing family.

Dr. A. E. Colvin writes: Cecil Purser has died. A pen more able than mine will write of his outstanding academic qualifications. I wish to pay tribute to the greatness of his character, his extreme modesty and the kindly gentleness of his soul. Some sixty years ago I first knew this "beloved physician". At that time my father was a clergyman whose parish was Dulwich Hill and Lewisham, and Dr. Purser practised there and was our family doctor. Before the days of the "Welfare State" the local clergyman knew the needs of the poor—knew how often a doctor's kindly and skilful help was necessary. Cecil Purser never refused to give such help, and not only freely gave his skill to the sick poor, but gave it so graciously that the poor were enriched and blessed by his visits. During my childhood days I was privileged, because of schoolboy ills, to know and develop a great affection for the family doctor; that affection grew and has remained for over half a century—an affection which was mutual and which developed more and more through my student and university days and afterwards during the many years of our professional association. I recall with gratitude his personal interest in me. Being the son of a poor parson, I was tempted when school days ended to seek money, and perhaps success, with an excellent business company. Cecil Purser saw me and persuaded me

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED FEBRUARY 21, 1953.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	1	1(1)	..	..	1	..	..	..	3
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	1	..	..	..	2	..	3
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	7(7)	3(3)	11(9)	..	..	..	6	..	27
Diphtheria	8(4)	5(4)	1	..	3(1)	2(2)	..	..	19
Dysentery (Bacillary)	..	1	3	..	3(3)	..	..	..	7
Encephalitis	..	1	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	2(1)	..	..	2
Infective Hepatitis	..	6(1)	..	..	16(13)	..	..	..	22
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	8	..	..	..	..	..	8
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	5(4)	..	..	..	1(1)	..	..	6
Ophthalmia	..	..	..	..	2(1)	..	..	..	2
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	1(1)	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	16(8)	17(4)	8(1)	10(7)	2(2)	11(4)	..	..	64
Puerperal Fever	1	..	..	..	..	..	..	..	1
Rubella	..	29(15)	..	..	..	..	..	..	29
Salmonella Infection	..	..	..	..	2(1)	..	..	..	2
Scarlet Fever	4(2)	45(25)	1	1(1)	2(1)	1	..	..	54
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	1	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	25(19)	59(42)	15(5)	6(3)	17(5)	7(1)	..	1	130
Typhoid Fever	..	..	1(1)	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	1	..	..	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1]Figures in parentheses are those for the metropolitan area.

to think of the future, to have faith in myself and in his vision, and so I went on to the University as a medical student. Largely owing to the personal interest he took in my career I succeeded in graduating. During my university days I visited his home regularly, when he was a very busy general practitioner, and was instructed and coached by him (of course, no fee was paid), and he and I were proud and happy when I received "the coveted degree". Afterwards I continued to be advised and inspired by him, and whatever good I achieved in my profession was largely due to Cecil Purser. His code of honour, the ethics of his profession, the love of his work set an example to all those who worked as students of his—and later on as colleagues. Our country and our profession owe much to Cecil Purser, and especially so do I. My wife and I always looked forward to and enjoyed and appreciated his visits to our home in Orange.

Deaths.

THE following deaths have been announced:

FOTHERGILL.—William Lewis Fothergill, on March 11, 1953, at Indooroopilly, Queensland.

FLETCHER.—Alan Rabone Fletcher, on March 12, 1953, at Stanmore, New South Wales.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Cumming, Robert Wellington, M.B., B.S., 1952 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown, New South Wales.

Maginnity, Leo Kevin, M.B., B.S., 1952 (Univ. Sydney), 45 Macleay Street, Potts Point, New South Wales.

Hornbrook, Alan Francis, M.B., B.S., 1952 (Univ. Sydney), Prince Henry Hospital, Little Bay, New South Wales.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Botond, Paul, provisional registration in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*); Buchbinder, Franz Joachim, provisional registration in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*); Burgess, John, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Cameron, Ian Edward Cashel, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Collibee, John Mervyn, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Cooper, Margaret Mae, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Crossley, Jill Teresa, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Cuningham, Angus Brian, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Danesi, Dino, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Gallagher, Hugh Guthrie, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Iceton, Edward Arthur, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Keelty, Clodagh Mary, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Knight, John Franklin, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Llewelyn, Donald Manton, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Lorang, Henri Frans Frederik, provisional registration, M.B., B.S., 1953 (Univ. Sydney); McGaw, Brian, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Martin, Matthew John, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Mills, Charles Albert, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Mocatta, Lawrence Osborne, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Polla'k, Alexander, registered in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*); Pountney, Richard Knowles, M.B., B.S., 1952 (Univ. Sydney); Rainsford, Frederick Gwynne, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Raymond, Arthur Wilmot, junior, M.B., B.S., 1952 (Univ. Sydney); Roden, Gordon Blake Slatyer, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Rooney, John Russell, M.B., B.S., 1951 (Univ. Sydney); Ross, Thomas Sydney, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Skyring, Alan Paine, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Smyth, Donald Abercrombie, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Stephen, Sidney Desmond, provisional registration, M.B., B.S., 1953 (Univ. Sydney); Thompson, Rodney Fourro, M.B., B.S., 1952 (Univ. Sydney); Traub, Erich, provisional registration in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*); Wilcken, David Leon, provisional registration, M.B., B.S., 1953 (Univ. Sydney).

Diary for the Month.

MARCH 28.—Victorian Branch, B.M.A.: Country Branch Meeting.
MARCH 31.—New South Wales Branch, B.M.A.: Council (Election of Officers).
APRIL 1.—Victorian Branch, B.M.A.: Branch Meeting.
APRIL 1.—Western Australian Branch, B.M.A.: Council Meeting.
APRIL 2.—South Australian Branch, B.M.A.: Council Meeting.
APRIL 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital: all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 *per annum* within Australia and the British Commonwealth of Nations, and £6 10s. *per annum* within America and foreign countries, payable in advance.